

Model Name: T550QVD01.0

Issue Date : 2011/12/20

() Preliminary Specifications
(*) Final Specifications

<u>Customer Signature</u>	<u>Date</u>	<u>AUO</u>	<u>Date</u>
Approved By		Approval By PM Director	
Note		Reviewed By RD Director	
		Reviewed By Project Leader	
		Prepared By PM	

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Customer Signature

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Contents

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		CONTENTS
		RECORD OF REVISIONS
1		GENERAL DESCRIPTION
2		ABSOLUTE MAXIMUM RATINGS
3		ELECTRICAL SPECIFICATION
	3-1	ELECTRIACL CHARACTERISTICS
	3-2	INTERFACE CONNECTIONS
	3-3	SIGNAL TIMING SPECIFICATION
	3-4	SIGNAL TIMING WAVEFORM
	3-5	COLOR INPUT DATA REFERENCE
	3-6	POWER SEQUENCE
	3-7	BACKLIGHT SPECIFICATION
4		OPTICAL SPECIFICATION
5		MECHANICAL CHARACTERISTICS
6		RELIABILITY TEST ITEMS
7		INTERNATIONAL STANDARD
	7-1	SAFETY
	7-2	EMC
8		PACKING
	8-1	DEFINITION OF LABEL
	8-2	PACKING METHODS
	8-3	PALLET AND SHIPMENT INFORMATION
9		PRECAUTION
	9-1	MOUNTING PRECAUTIONS
	/9-2	OPERATING PRECAUTIONS
	9-3	ELECTROSTATIC DISCHARGE CONTROL
	9-4	PRECAUTIONS FOR STRONG LIGHT EXPOSURE
	9-5	STORAGE
	9-6	HANDLING PRECAUTIONS FOR PROTECT FILM

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1. General Description

This specification applies to the 55 inch Color TFT-LCD Module T550QVD01.0. This LCD module has a TFT active matrix type liquid crystal 3,840*2,160 panel pixels, and diagonal size of 55 inch. This module supports 3,840*2,160 mode. Each pixel is divided into Red, Green and Blue sub-pixels or dots which are arranged in vertical stripes. Gray scale or the brightness of the sub-pixel color is determined with a 10-bit gray scale signal for each dot.

The T550QVD01.0 has been designed to apply the 10-bit, 16ch V by one interface method. It is intended to support displays where high brightness, wide viewing angle, high color saturation, and high color depth are very important. Also, 3D function is also embedded into front glass

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* General Information

Items	Specification	Unit	Note
Active Screen Size	55	inch	
Display Area	1209.6(H) x 680.4(V)	mm	
Outline Dimension	1242.6(H) x 715.4(V) x 16.2(Dmin)	mm	
Driver Element	a-Si TFT active matrix		
Bezel Opening	1218.6(H) x 689.4(V)	mm	
Display Colors	10 bit,	Colors	
Number of Pixels	3840 x 3 x 2160	Pixel	
Pixel Pitch	0.315(H) x 0.315(W)	mm	
Pixel Arrangement	RGB vertical stripe		
Display Operation Mode	Normally Black		
Rotate Function	Unachievable		Note 1
Display Orientation	Signal input with "A"		Note 2

Note 1: Rotate Function refers to LCD display could be able to rotate.

Note 2: LCD display as below illustrated when signal input with "A".

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2. Absolute Maximum Ratings

The followings are maximum values which, if exceeded, may cause faulty operation or damage to the unit

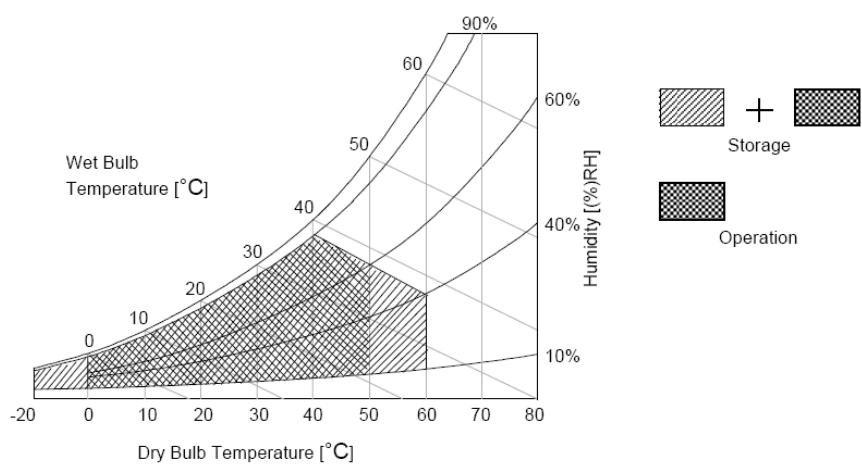
Item	Symbol	Min	Max	Unit	Conditions
Logic/LCD Drive Voltage (for 12V input)	Vcc	-0.3	14	[Volt]	Note 1
Logic/LCD Drive Voltage (for 5V input)	Vcc			[Volt]	Note 1
Input Voltage of Signal (for 12V input)	Vin	-0.3	3.6	[Volt]	Note 1
Input Voltage of Signal (for 5V input)	Vin			[Volt]	Note 1
Operating Temperature	TOP	0	+50	[°C]	Note 2
Operating Humidity	HOP	10	90	[%RH]	Note 2
Storage Temperature	TST	-20	+60	[°C]	Note 2
Storage Humidity	HST	10	90	[%RH]	Note 2
Panel Surface Temperature	PST	-	65	[°C]	Note 3

Note 1: Duration:50 msec.

Note 2 : Maximum Wet-Bulb should be 39°C and No condensation.

The relative humidity must not exceed 90% non-condensing at temperatures of 40°C or less. At temperatures greater than 40°C, the wet bulb temperature must not exceed 39°C .

Note 3: Surface temperature is measured at 50°C Dry condition



3. Electrical Specification

The T550QVD01 .0 requires two power inputs. One is employed to power the LCD electronics and to drive the TFT array and liquid crystal. The other is to power Back Light Unit.

3.1 Electrical Characteristics

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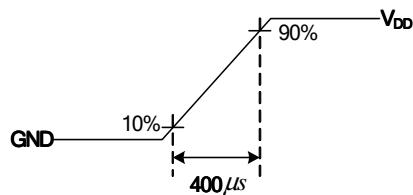
3.1.1: DC Characteristics

Parameter	Symbol	Value			Unit	Note
		Min.	Typ.	Max		
LCD						
Power Supply Input Voltage (for input power=12V)	V _{DD}	10.8	12	13.2	V _{DC}	
Power Supply Input Current (Define to section:1.1)	I _{DD}	--	1.9	4.5	A	1
Power Consumption (Define to section:1.1)	P _C	--	22.8	54	Watt	1
Inrush Current (Define to section:1.1)	I _{RUSH}	--	2	4	A	2
V by One Interface	Input Differential Voltage	V _{ID}	100		mV _{DC}	3
	Differential Input High Threshold Voltage	V _{TH}	+50		mV _{DC}	3
	Differential Input Low Threshold Voltage	V _{TL}		-50	mV _{DC}	3
	Input Common Mode Voltage	V _{ICM}		0.82	V _{DC}	3
CMOS Interface	Input High Threshold Voltage	V _{IH} (High)	2.4	--	V _{DC}	4
	Input Low Threshold Voltage	V _{IL} (Low)	0	--	0.6	V _{DC}
Backlight Power Consumption	P _{BL}		137		Watt	
Life time (MTTF)		30000			Hour	5.6

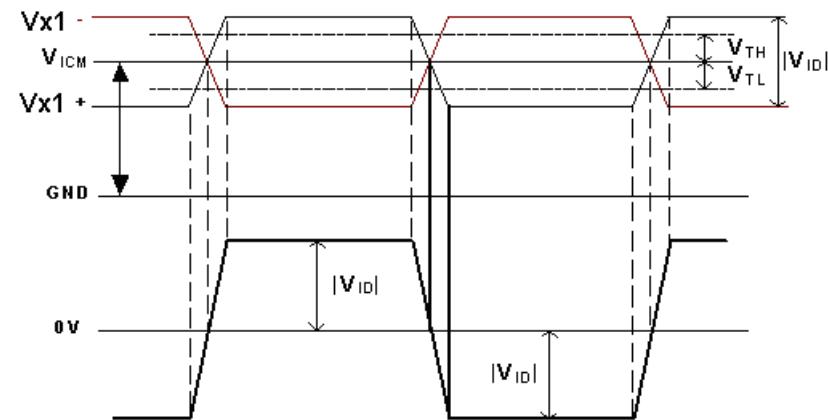
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Note :

- $V_{DD} = 12.0V$, $F_v = 120Hz$, $F_{clk} = 78.125MHz$, $25^\circ C$, Test Pattern : White Pattern
>> refer to "Section:3.3 Signal Timing Specification, Typical timing"
- Measurement condition : Rising time = 400us



- $V_{ICM} = 0.82V$



- The measure points of V_{IH} and V_{IL} are in LCM side after connecting the System Board and LCM.
- The relative humidity must not exceed 80% non-condensing at temperatures of $40^\circ C$ or less. At temperatures greater than $40^\circ C$, the wet bulb temperature must not exceed $39^\circ C$. When operate at low temperatures, the brightness of LED will drop and the life time of LED will be reduced.
- The lifetime (MTTF) is defined as the time which luminance of LED is 50% compared to its original value.
[Operating condition: Continuous operating at $T_a = 25 \pm 2^\circ C$]

3.2 Interface Connections

- LCD V by One connector:

V by One CN (41Pin) : [FI-RE41S-HF \(JAE\)](#)

PIN	Symbol	Description	PIN	Symbol	Description
1	GND	Ground	21	Rx11n	V-by-One HS Data Lane 11
2	GND	Ground	22	Rx11p	V-by-One HS Data Lane 11
3	GND	Ground	23	GND	CML Ground
4	GND	Ground	24	GND	CML Ground
5	GND	Ground	25	Rx12n	V-by-One HS Data Lane 12
6	SCL	I2C CLK	26	Rx12p	V-by-One HS Data Lane 12
7	SDA	I2C Data	27	GND	CML Ground
8	GND	CML Ground	28	GND	CML Ground
9	Rx8n	V-by-One HS Data Lane 8	29	Rx13n	V-by-One HS Data Lane 13
10	Rx8p	V-by-One HS Data Lane 8	30	Rx13p	V-by-One HS Data Lane 13
11	GND	CML Ground	31	GND	CML Ground
12	GND	CML Ground	32	GND	CML Ground
13	Rx9n	V-by-One HS Data Lane 9	33	Rx14n	V-by-One HS Data Lane 14
14	Rx9p	V-by-One HS Data Lane 9	34	Rx14p	V-by-One HS Data Lane 14
15	GND	CML Ground	35	GND	CML Ground
16	GND	CML Ground	36	GND	CML Ground
17	Rx10n	V-by-One HS Data Lane 10	37	Rx15n	V-by-One HS Data Lane 15
18	Rx10p	V-by-One HS Data Lane 10	38	Rx15p	V-by-One HS Data Lane 15
19	GND	CML Ground	39	GND	CML Ground
20	GND	CML Ground	40	NC	AUO Internal Use Only
			41	GND	Ground

V by One CN (51Pin) : [FI-RE51S-HF \(JAE\)](#)

PIN	Symbol	Description	PIN	Symbol	Description
1	NC	NC PIN	26	GND	CML Ground
2	NC	NC PIN	27	Rx2n	V-by-One HS Data Lane 2
3	NC	AUO Internal Use Only	28	Rx2p	V-by-One HS Data Lane 2
4	NC	NC PIN	29	GND	CML Ground
5	NC	NC PIN	30	GND	CML Ground
6	NC	NC PIN	31	Rx3n	V-by-One HS Data Lane 3
7	NC	NC PIN	32	Rx3p	V-by-One HS Data Lane 3
8	NC	NC PIN	33	GND	CML Ground
9	NC	AUO Internal Use Only	34	GND	CML Ground
10	NC	NC PIN	35	Rx4n	V-by-One HS Data Lane 4
11	GND	Ground	36	Rx4p	V-by-One HS Data Lane 4
12	GND	Ground	37	GND	CML Ground
13	GND	Ground	38	GND	CML Ground
14	GND	Ground	39	Rx5n	V-by-One HS Data Lane 5
15	GND	Ground	40	Rx5p	V-by-One HS Data Lane 5
16	HTPDN	Hot plug detect	41	GND	CML Ground
17	LOCKN	Lock detect	42	GND	CML Ground

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刪除: GND ... [6]

刪除: Rx11n ... [7]

刪除: 2 ... [8]

刪除: Rx11p ... [9]

刪除: 3 ... [10]

刪除: GND ... [11]

刪除: 4 ... [12]

刪除: GND ... [13]

刪除: 5 ... [14]

刪除: Rx12n ... [15]

刪除: 6 ... [16]

刪除: Rx12p ... [17]

刪除: 7

刪除: 27

刪除: SDA ... [18]

刪除: GND ... [19]

刪除: 8

刪除: 28

刪除: GND ... [20]

刪除: GND ... [21]

刪除: 9

刪除: 29

刪除: Rx8n ... [22]

刪除: Rx13n ... [23]

刪除: 10

刪除: 30

刪除: Rx8p ... [24]

刪除: Rx13p ... [25]

刪除: 11

刪除: 31

刪除: GND ... [26]

... [27]

... [28]

... [29]

... [30]

... [31]

18	GND	CML Ground	43	Rx6n	V-by-One HS Data Lane 6
19	Rx0n	V-by-One HS Data Lane 0	44	Rx6p	V-by-One HS Data Lane 6
20	Rx0p	V-by-One HS Data Lane 0	45	GND	CML Ground
21	GND	CML Ground	46	GND	CML Ground
22	GND	CML Ground	47	Rx7n	V-by-One HS Data Lane 7
23	Rx1n	V-by-One HS Data Lane 1	48	Rx7p	V-by-One HS Data Lane 7
24	Rx1p	V-by-One HS Data Lane 1	49	GND	CML Ground
25	GND	CML Ground	50	NC	AUO Internal Use Only
			51	SYNC3D	3D Sync. In Flag (Glasses type)

- LCD Power connector:

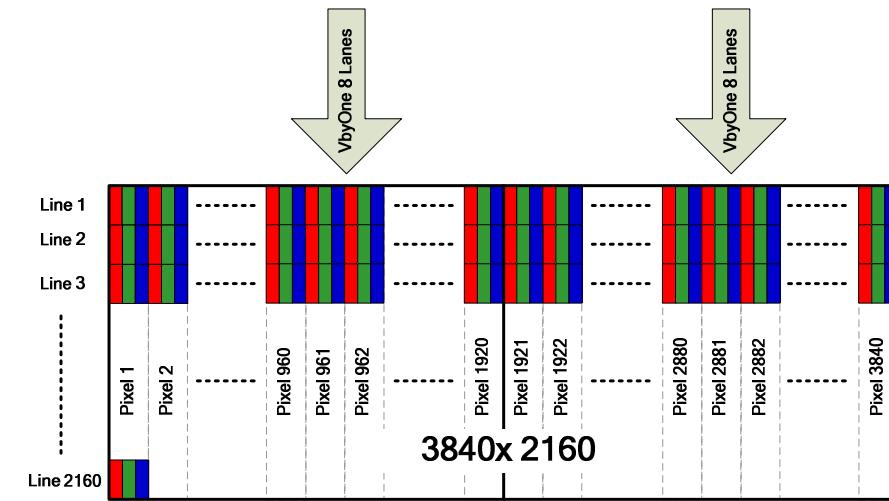
Power CN (12Pin) : A2010WR0-12PS-SHP (JWT)

PIN	Symbol	Description
1	PWR Power V12 IN	PWR Power V12 IN
2	PWR Power V12 IN	PWR Power V12 IN
3	PWR Power V12 IN	PWR Power V12 IN
4	PWR Power V12 IN	PWR Power V12 IN
5	PWR Power V12 IN	PWR Power V12 IN
6	NC	NC PIN
7	NC	NC PIN
8	GND Ground	GND Ground
9	GND Ground	GND Ground
10	GND Ground	GND Ground
11	GND Ground	GND Ground
12	GND Ground	GND Ground

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刪除: 18
刪除: 43
刪除: GND
... [41]
刪除: Rx6n
... [42]
刪除: 19
刪除: 44
刪除: Rx0n
... [43]
刪除: Rx6p
... [44]
刪除: 20
刪除: 45
刪除: Rx0p
... [45]
刪除: GND
... [46]
刪除: 21
刪除: 46
刪除: GND
... [48]
刪除: 22
刪除: Rx7n
... [50]
刪除: 23
刪除: 48
刪除: Rx1n
... [51]
刪除: Rx7p
... [52]
刪除: 24
刪除: 49
刪除: Rx1p
... [53]
刪除: GND
... [54]
刪除: 25
刪除: 50
刪除: GND
... [55]
刪除: NC
刪除: AGIN
刪除: AUO Internal Use
... [56]
格式化: 字型色彩: 自動
刪除: Aging Mode
格式化: 字型色彩: 自動
刪除: 51
刪除: SYNC3D_I
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... [58]
... [59]
... [60]
... [61]
... [62]

4 K2K Input Data Format:

2D Mode:

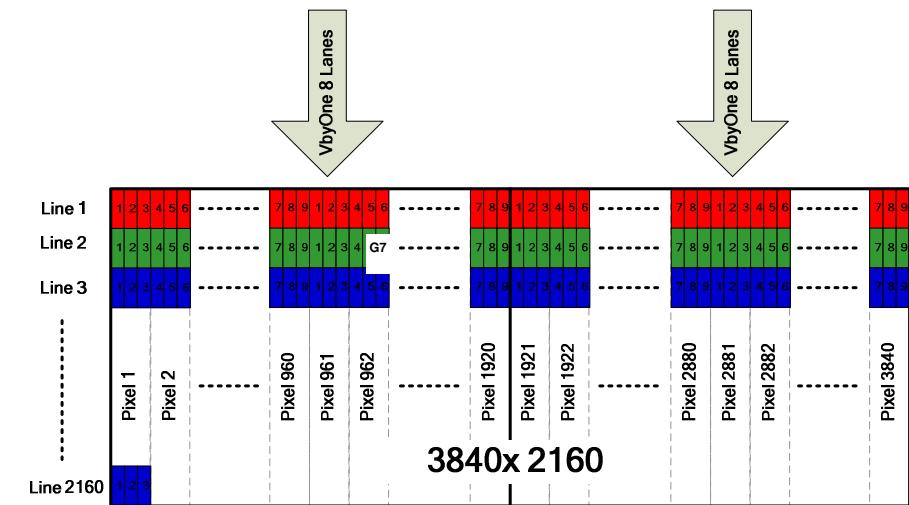


Note: Normal pixel data mapping

2D Mode Pixel Mapping:

<u>Pixel No</u>	<u>Pixel 1</u>			<u>Pixel 2</u>			<u>Pixel 3</u>			<u>~</u>	<u>Pixel 3840</u>			
<u>Line 1</u>	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840
<u>Line 2</u>	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840
<u>Line 3</u>	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840
<u>Line 4</u>	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840
<u>Line 5</u>	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840
<u>Line 6</u>	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮
<u>Line 2158</u>	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840
<u>Line 2159</u>	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840
<u>Line 2160</u>	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840

3D Mode (9-View)



Note: 3D multi-view data mapping (1,2,3,4,5,6,7,8,9 is the viewing number)

3D Mode Pixel Mapping:

	Pixel No.	Pixel 1			Pixel 2			Pixel 3			Pixel 4			Pixel 5			Pixel 6			Pixel 7			Pixel 8			Pixel 9		
		1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
<u>Line 1</u>	Multi-view Line 1	R1	R1	R1	R1	R1	R1	R1	R1	R1	R2	~	R1280	R1280	R1280													
<u>Line 2</u>		G1	G1	G1	G1	G1	G1	G1	G1	G1	G2	~	G1280	G1280	G1280													
<u>Line 3</u>		B1	B1	B1	B1	B1	B1	B1	B1	B1	B2	~	B1280	B1280	B1280													
<u>Line 4</u>	Multi-view Line 2	R1	R1	R1	R1	R1	R1	R1	R1	R1	R2	~	R1280	R1280	R1280													
<u>Line 5</u>		G1	G1	G1	G1	G1	G1	G1	G1	G1	G2	~	G1280	G1280	G1280													
<u>Line 6</u>		B1	B1	B1	B1	B1	B1	B1	B1	B1	B2	~	B1280	B1280	B1280													
⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	⋮	
<u>Line 2158</u>	Multi-view Line 720	R1	R1	R1	R1	R1	R1	R1	R1	R1	R2	~	R1280	R1280	R1280													
<u>Line 2159</u>		G1	G1	G1	G1	G1	G1	G1	G1	G1	G2	~	G1280	G1280	G1280													
<u>Line 2160</u>		B1	B1	B1	B1	B1	B1	B1	B1	B1	B2	~	B1280	B1280	B1280													

V-by-One Lanes of Pixel Data :

	<u>Lane 0</u>	<u>Lane 1</u>	<u>Lane 2</u>	<u>Lane 3</u>	<u>Lane 4</u>	<u>Lane 5</u>	<u>Lane 6</u>	<u>Lane 7</u>
<u>Blank</u>	<u>FSBS</u>	<u>FSBS</u>						
	<u>FSBP</u>	<u>FSBP</u>						
	<u>FSBE_SR</u>	<u>FSBE_SR</u>						
<u>Line 1</u>	<u>Pixel 1</u>	<u>Pixel 2</u>	<u>Pixel 3</u>	<u>Pixel 4</u>	<u>Pixel 5</u>	<u>Pixel 6</u>	<u>Pixel 7</u>	<u>Pixel 8</u>
	<u>Pixel 9</u>	<u>Pixel 10</u>	<u>Pixel 11</u>	<u>Pixel 12</u>	<u>Pixel 13</u>	<u>Pixel 14</u>	<u>Pixel 15</u>	<u>Pixel 16</u>
	<u>Pixel 1913</u>	<u>Pixel 1914</u>	<u>Pixel 1915</u>	<u>Pixel 1916</u>	<u>Pixel 1917</u>	<u>Pixel 1918</u>	<u>Pixel 19198</u>	<u>Pixel 1920</u>
<u>Blank</u>	<u>FSBS</u>	<u>FSBS</u>						
	<u>FSBP</u>	<u>FSBP</u>						
	<u>FSBE_SR</u>	<u>FSBE_SR</u>						
<u>Line2</u>	<u>Pixel 1</u>	<u>Pixel 2</u>	<u>Pixel 3</u>	<u>Pixel 4</u>	<u>Pixel 5</u>	<u>Pixel 6</u>	<u>Pixel 7</u>	<u>Pixel 8</u>
	<u>Pixel 8</u>	<u>Pixel 10</u>	<u>Pixel 11</u>	<u>Pixel 12</u>	<u>Pixel 13</u>	<u>Pixel 14</u>	<u>Pixel 15</u>	<u>Pixel 16</u>
	<u>Pixel 1913</u>	<u>Pixel 1914</u>	<u>Pixel 1915</u>	<u>Pixel 1916</u>	<u>Pixel 1917</u>	<u>Pixel 1918</u>	<u>Pixel 19198</u>	<u>Pixel 1920</u>
<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>
<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>

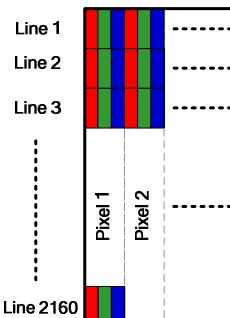
	<u>Lane 8</u>	<u>Lane 9</u>	<u>Lane 10</u>	<u>Lane 11</u>	<u>Lane 12</u>	<u>Lane 13</u>	<u>Lane 14</u>	<u>Lane 15</u>
<u>Blank</u>	<u>FSBS</u>							
	<u>FSBP</u>							
	<u>FSBE_SR</u>							
<u>Line 1</u>	<u>Pixel 1921</u>	<u>Pixel 1922</u>	<u>Pixel 1923</u>	<u>Pixel 1924</u>	<u>Pixel 1925</u>	<u>Pixel 1926</u>	<u>Pixel 1927</u>	<u>Pixel 1928</u>
	<u>Pixel 1929</u>	<u>Pixel 1930</u>	<u>Pixel 1931</u>	<u>Pixel 1932</u>	<u>Pixel 1933</u>	<u>Pixel 1934</u>	<u>Pixel 1935</u>	<u>Pixel 1936</u>
	<u>•</u>							
<u>Blank</u>	<u>Pixel 3833</u>	<u>Pixel 3834</u>	<u>Pixel 3835</u>	<u>Pixel 3836</u>	<u>Pixel 3837</u>	<u>Pixel 3838</u>	<u>Pixel 3839</u>	<u>Pixel 3840</u>
	<u>FSBS</u>							
	<u>FSBP</u>							
<u>Line2</u>	<u>FSBE_SR</u>							
	<u>Pixel 1921</u>	<u>Pixel 1922</u>	<u>Pixel 1923</u>	<u>Pixel 1924</u>	<u>Pixel 1925</u>	<u>Pixel 1926</u>	<u>Pixel 1927</u>	<u>Pixel 1928</u>
	<u>Pixel 1929</u>	<u>Pixel 1930</u>	<u>Pixel 1931</u>	<u>Pixel 1932</u>	<u>Pixel 1933</u>	<u>Pixel 1934</u>	<u>Pixel 1935</u>	<u>Pixel 1936</u>
<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>	<u>•</u>
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刪除: K2K Input Data

Format: .

2D Mode: .



Note: Normal pixel data
mapping .

2D Mode Pixel Mapping: .

Pixel No

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格式化: 項目符號及編號

3.3 Signal Timing Specification

This is the signal timing required at the input of the user connector. All of the interface signal timing should be satisfied with the following specifications for its proper operation.

4K2K (3840x2160) V-by-One Each Lane Timing Spec. (240x2160 @120Hz x16Lanes)

Type	Item	Symbol	Min	Typ	Max	Unit
Vertical Section	Period	Tv	2172	2200	2244	Th
	Active	Tdisp(v)	2160			Th
	Blanking	Tblk(v)	12	40	84	Th
Horizontal Section	Period	Th	280	290	300	Tclk
	Active	Tdisp(h)	240			Tclk
	Blanking	Tblk(h)	40	50	60	Tclk
Frequency	Clock	Tclk		76.48	78.125	MHz

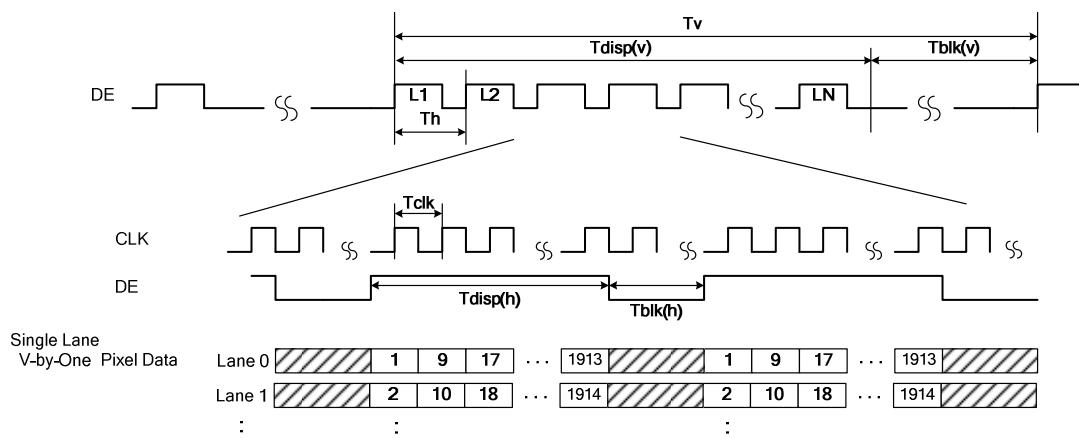
4K2K (3840x2160) V-by-One Each Lane Timing Spec. (240x2160 @100Hz x16Lanes)

Type	Item	Symbol	Min	Typ	Max	Unit
Vertical Section	Period	Tv	2172	2200	2692	Th
	Active	Tdisp(v)	2160			Th
	Blanking	Tblk(v)	12	40	532	Th
Horizontal Section	Period	Th	280	290	354	Tclk
	Active	Tdisp(h)	240			Tclk
	Blanking	Tblk(h)	40	50	114	Tclk
Frequency	Clock	Tclk		76.48	78.125	MHz

4K2K V-by-One 2area (1920x2160) Timing difference

Type	Item	Symbol	Min	Typ	Max	Unit
2Area Latency	Difference	Tdiff	-1	0	1	Th

3.4 Signal Timing Waveforms



3.5 Color Input Data Reference

The brightness of each primary color (red, green and blue) is based on the 10 bit gray scale data input for the color; the higher the binary input, the brighter the color. The table below provides a reference for color versus data input.

COLOR DATA REFERENCE

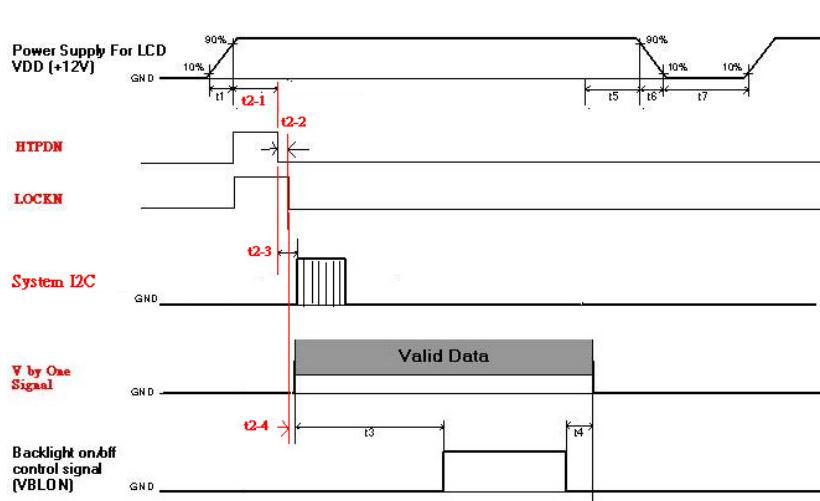
Color	Input Color Data																													
	RED										GREEN								BLUE											
	MSB					LSB					MSB				LSB				MSB			LSB								
	R9	R8	R7	R6	R5	R4	R3	R2	R1	R0	G9	G8	G7	G6	G5	G4	G3	G2	G1	G0	B9	B8	B7	B6	B5	B4	B3	B2	B1	B0
Basic Color	Black	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Red(1023)	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Green(1023)	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0		
	Blue(1023)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	
	Cyan	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	Magenta	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	
	Yellow	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	
	White	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
R	RED(000)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	RED(001)	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

	RED(1022)	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	RED(1023)	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
G	GREEN(000)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	GREEN(001)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	

	GREEN(1022)	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	
B	GREEN(1023)	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	
	BLUE(000)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	BLUE(001)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	

B	BLUE(1022)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	0	
	BLUE(1023)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	

3.6 Power Sequence for LCD



格式化: 縮排: 第一行: 2 字
元

Parameter	Values			Unit
	Min.	Type.	Max.	
t1	0.4	--	30	ms
t2-1	1145	--	3580	ms
t2-2	--	--	--*1	ms
t2-3	60	--	--	ms
t2-4			1	ms
t3	620	--	--	ms
t4	0*2	--	--	ms
t5	0	--	--	ms
t6	--	--	--*3	ms
t7	500	--	--	ms

Note:

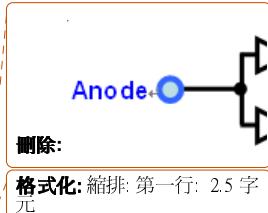
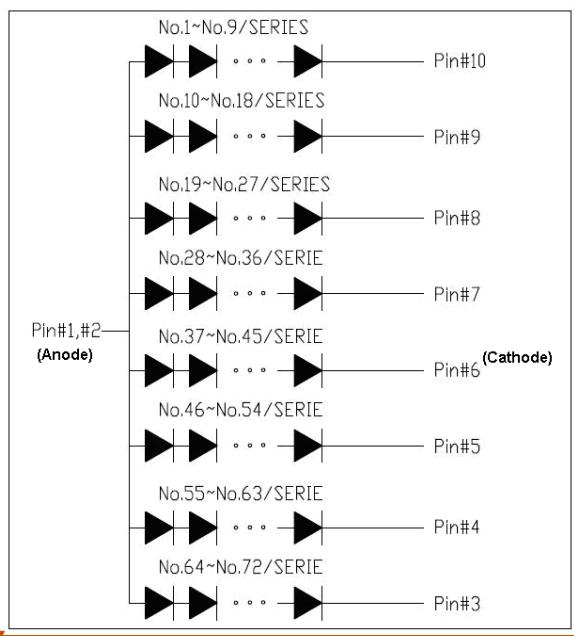
- (1) t2-1 : V by One training time after power-on. The timing of HTPDN falling edge to LOCKN falling edge decided by customer system.
- (1) t4=0 : concern for residual pattern before BLU turn off.
- (2) t6 : voltage of VDD must decay smoothly after power-off. (Customer system decide this value)

3.7 Backlight Specification (without driver board)

3.7.1 Light bar Driven Condition

格式化: 字型色彩: 自動

Parameter	Symbol	Values			Unit	Note
		Min	Typ	Max		
Forward Current (one light bar)	Anode	IF (anode)	616		mA	
	Cathode	IF (cathode)	77		mA	
Peak Forward Current	IPP			550	mA	<1msec Per LED:
Forward Voltage	VF	50.8	55.3	59.8	V	
Forward Voltage Variation	ΔVF			1.8	V	
Total Power Consumption (4 light bars)	PBL	125.2	136.3	147.4	W	



Note 1: Low dimming ratio operation

When PWM dimming duty ratio is operated lower than recommended value, feedback signal and all protection functions should be confirmed by LIPS design. Display performance should also be confirmed by customer's implement.

格式化: 字型色彩: 自動

Note 2: Each LED string should be driven by independent current control/feedback circuit.

Note 3: Fuse protection should be added into LIPS circuit to have better LED driving protection.

3.7.2 Input Pin Assignment

LED connector : CviLux CI1420M1HRH-NH

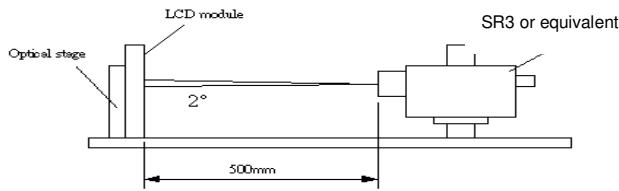
Pin Number	CN102	CN103
<u>1</u>	<u>Zone2+</u>	<u>Zone4+</u>
<u>2</u>	<u>Zone2+</u>	<u>Zone4+</u>
<u>3</u>	<u>Zone2_1-</u>	<u>Zone4_1-</u>
<u>4</u>	<u>Zone2_2-</u>	<u>Zone4_2-</u>
<u>5</u>	<u>Zone2_3-</u>	<u>Zone4_3-</u>
<u>6</u>	<u>Zone2_4-</u>	<u>Zone4_4-</u>
<u>7</u>	<u>Zone2_5-</u>	<u>Zone4_5-</u>
<u>8</u>	<u>Zone2_6-</u>	<u>Zone4_6-</u>
<u>9</u>	<u>Zone2_7-</u>	<u>Zone4_7-</u>
<u>10</u>	<u>Zone2_8-</u>	<u>Zone4_8-</u>
<u>11</u>	<u>Zone1+</u>	<u>Zone3+</u>
<u>12</u>	<u>Zone1+</u>	<u>Zone3+</u>
<u>13</u>	<u>Zone1_1-</u>	<u>Zone3_1-</u>
<u>14</u>	<u>Zone1_2-</u>	<u>Zone3_2-</u>
<u>15</u>	<u>Zone1_3-</u>	<u>Zone3_3-</u>
<u>16</u>	<u>Zone1_4-</u>	<u>Zone3_4-</u>
<u>17</u>	<u>Zone1_5-</u>	<u>Zone3_5-</u>
<u>18</u>	<u>Zone1_6-</u>	<u>Zone3_6-</u>
<u>19</u>	<u>Zone1_7-</u>	<u>Zone3_7-</u>
<u>20</u>	<u>Zone1_8-</u>	<u>Zone3_8-</u>

4. Optical Specification

4.1 2D Optical Specification

Optical characteristics are determined after the unit has been 'ON' and stable for approximately 45 minutes in a dark environment at 25°C. The values specified are at an approximate distance 50cm from the LCD surface at a viewing angle of ϕ and θ equal to 0°.

Fig.1 presents additional information concerning the measurement equipment and method.



Parameter	Symbol	Values			Unit	Notes
		Min.	Typ.	Max		
Contrast Ratio	CR	4000	5000	--		1
Surface Luminance (White)	L_{WH} (2D)	360	450	--	cd/m ²	2
	L_{WH} (3D)		450			6
Luminance Variation	$\delta_{WHITE(9P)}$	--	--	1.3		3
Response Time (G to G)	T_g	--	5.5	--	Ms	4
Color Gamut	NTSC		72		%	
Color Coordinates						
Red	R_x	Typ.-0.03	0.640			
	R_y		0.330			
	G_x		0.310			
	G_y		0.620			
	B_x		0.150			
	B_y		0.050			
	White		0.280			
	W_x		0.290			
Viewing Angle						
2D	x axis, right($\phi=0^\circ$)	θ_r	--	89	degree	
	x axis, left($\phi=180^\circ$)	θ_l	--	89	degree	
	y axis, up($\phi=90^\circ$)	θ_u	--	89	degree	
	y axis, down ($\phi=270^\circ$)	θ_d	--	89	degree	

刪除: 3.7 Backlight
Specification (without
driver board)

刪除:
3.7.1 Light bar Driven
Condition

Parameter ... [70]

刪除: The backlight unit ... [71]

刪除: 3.7.1 Electrical ... [72]

刪除: ... [73]

格式化: 字型色彩: 自動

刪除: ...

刪除: TBD

格式化: 字型色彩: 自動

刪除: 0.630

刪除: 0.330

格式化: 字型色彩: 自動

刪除: 0.320

刪除: 0.620

刪除: 0.150

格式化: 字型色彩: 自動

刪除: 0.040

刪除: 0.280

刪除: 0.290

刪除: ... [74]

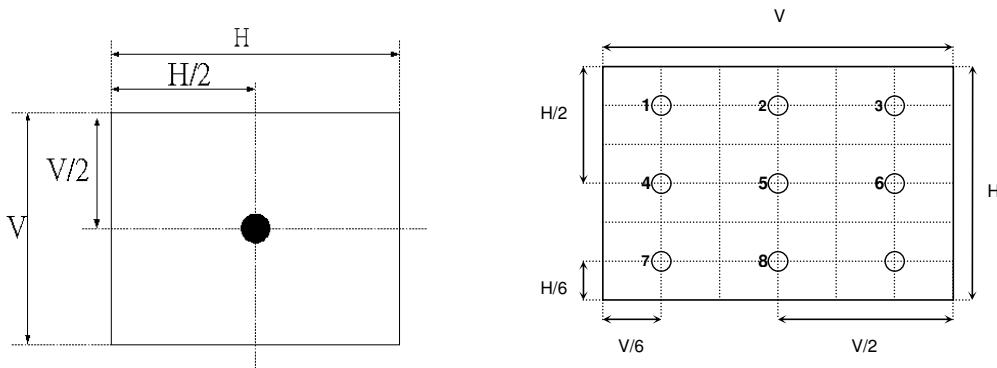
Note:

1. Contrast Ratio (CR) is defined mathematically as:

$$\text{Contrast Ratio} = \frac{\text{Surface Luminance of } L_{on5}}{\text{Surface Luminance of } L_{off5}}$$

2. Surface luminance is luminance value at point 5 across the LCD surface 50cm from the surface with all pixels displaying white. From more information see FIG 2. When LED current I_F = typical value (without driver board), LED input V_{DDB} = 24V, I_{DDB} = Typical value (with driver board), $L_{WH} = L_{on5}$ where L_{on5} is the luminance with all pixels displaying white at center 5 location.

FIG. 2 Luminance



3. The variation in surface luminance, δ_{WHITE} is defined (center of Screen) as:

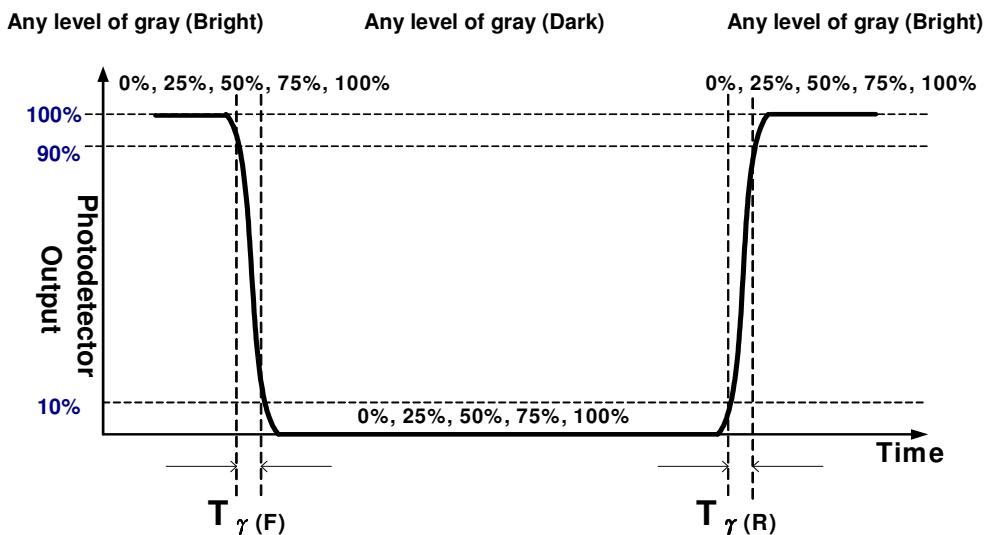
$$\delta_{WHITE(9P)} = \text{Maximum}(L_{on1}, L_{on2}, \dots, L_{on9}) / \text{Minimum}(L_{on1}, L_{on2}, \dots, L_{on9})$$

4. Response time T_γ is the average time required for display transition by switching the input signal for five luminance ratio (0%, 25%, 50%, 75%, 100% brightness matrix) and is based on $F_v=60\text{Hz}$ to optimize.

Measured Response Time		Target				
		0%	25%	50%	75%	100%
Start	0%	0% to 25%				0% to 50%
	25%	25% to 0%	25% to 50%			
	50%	50% to 0%	50% to 25%	50% to 75%		
	75%	75% to 0%	75% to 25%	75% to 50%	75% to 100%	
	100%	100% to 0%	100% to 25%	100% to 50%	100% to 75%	

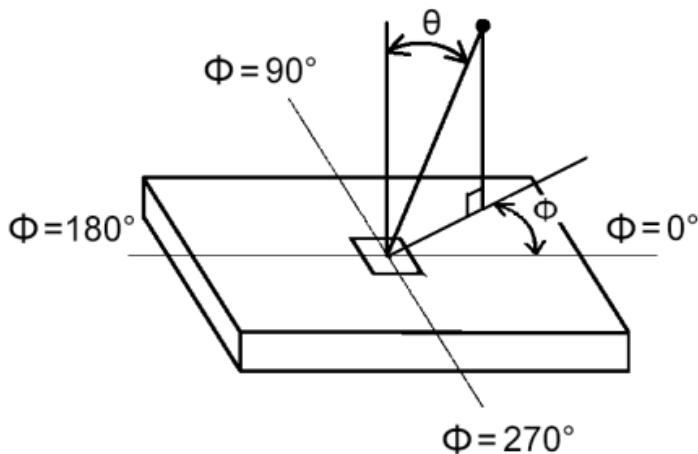
T_γ is determined by 10% to 90% brightness difference of rising or falling period. (As illustrated)

The response time is defined as the following figure and shall be measured by switching the input signal for "any level of grey(bright)" and "any level of gray(dark)".



5. Viewing angle is the angle at which the contrast ratio is greater than 10. The angles are determined for the horizontal or x axis and the vertical or y axis with respect to the z axis which is normal to the LCD surface. For more information see FIG3.

FIG.3 Viewing Angle



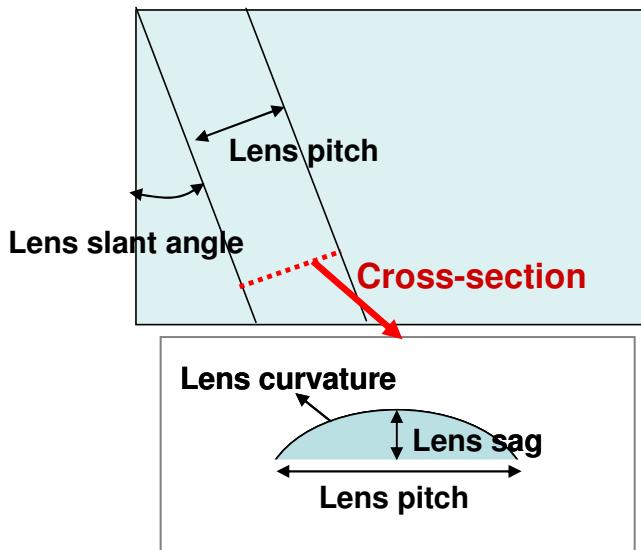
4.2 3D Optical Specification

3D performance specification is expressed by 3D luminance, 3D Crosstalk and 3D viewing angle. 3D luminance which is defined by L255 in all 9 views and measured at panel center point. Also, 3D crosstalk is measured at panel center point

4-2-1 measurement items

No.	Evaluation Items	Unit	Definition	55"			Notes
				Min	Typ	Max	
1	<u>Lens pitch</u>	<u>um</u>	<u>Fig.1</u>	<u>Typ-2.5</u>	<u>481.53</u>	<u>Typ+2.5</u>	<u>Incoming Inspection</u>
2	<u>Lens curvature</u>	<u>um</u>	<u>Fig.1</u>	<u>--</u>	<u>301.8</u>	<u>--</u>	<u>Incoming Inspection</u>
3	<u>Lens sag</u>	<u>um</u>	<u>Fig.1</u>	<u>Typ-2.0</u>	<u>119.8</u>	<u>Typ+2.0</u>	<u>Incoming Inspection</u>
4	<u>Lens slant angle</u>	<u>deg</u>	<u>Fig.1</u>	<u>Typ-0.3</u>	<u>9.7824</u>	<u>Typ+0.3</u>	<u>Incoming Inspection</u>
5	<u>Converging distance</u> <u>Original</u>	<u>m</u>	<u>After AUO calibration</u>	<u>--</u>	<u>2.2</u>	<u>--</u>	<u>Calibration</u>

FIG.1 Lens structure



5. Mechanical Characteristics

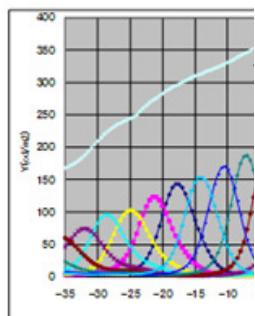
The contents provide general mechanical characteristics for the model T550QVD01 .0. In addition the figures in the next page are detailed mechanical drawing of the LCD.

Item	Dimension	Unit	Note
Outline Dimension	Horizontal	1242.6	mm
	Vertical	715.4	mm
	Depth (Dmin)	16.2	mm
	Depth (Dmax)	39.4	mm
Weight	18500	g	

格式化: 字型色彩: 自動

刪除: <sp>

刪除:

FIG.3 Light ray peak center position


刪除: <sp>

刪除:

FIG.4 3D Viewing angle
<sp>

... [75]

刪除: 4.2 3D Optical

... [76]

刪除: summation of left and right eye brightness under wearing glasses condition

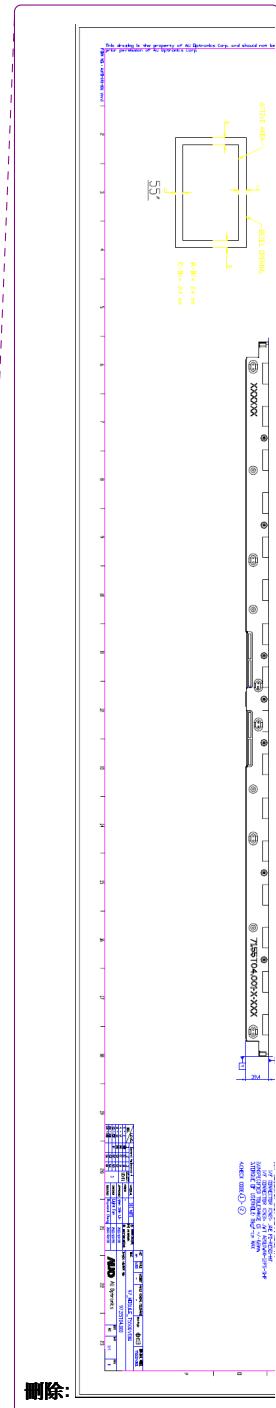
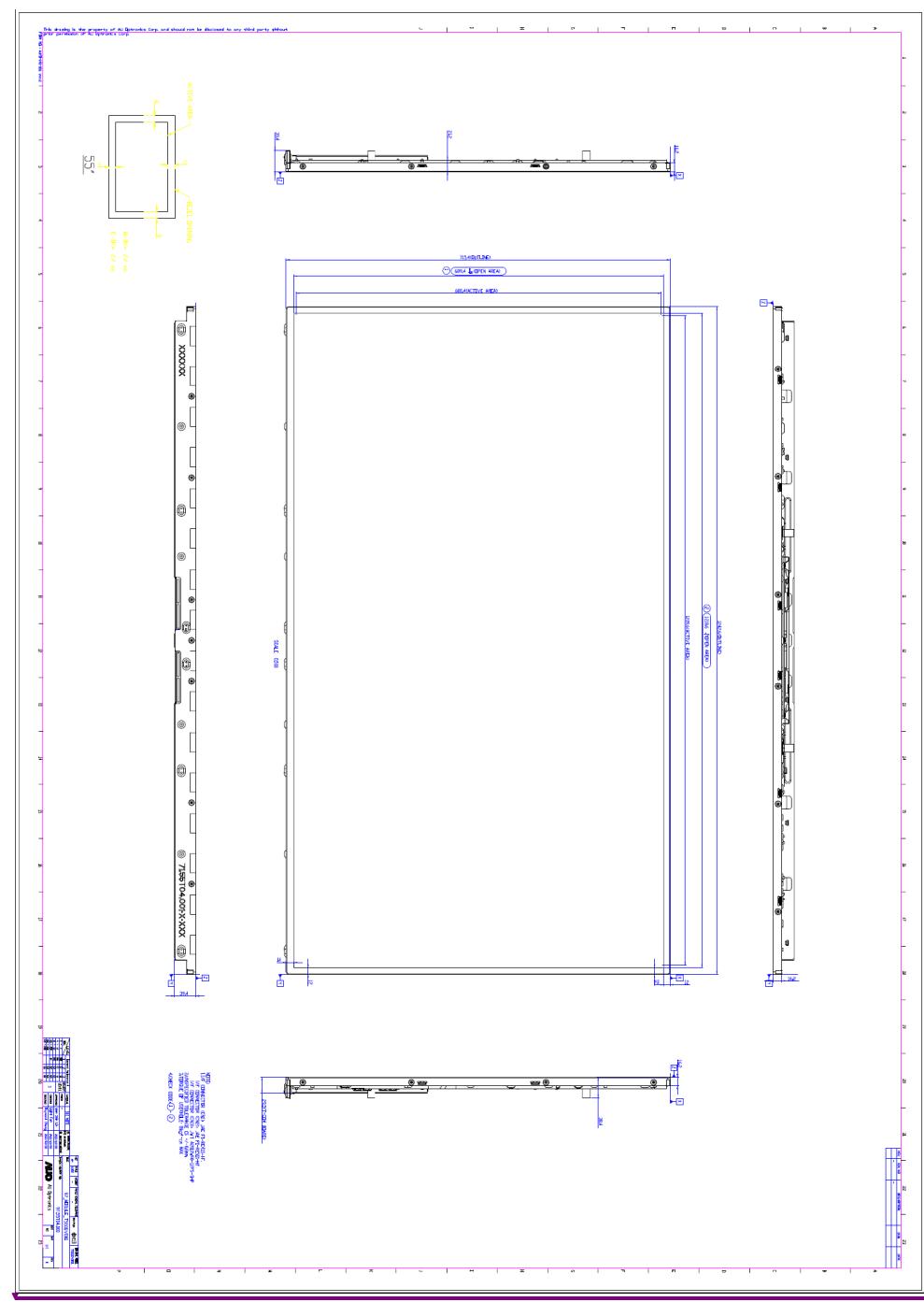
... [77]

刪除: Also, 3D crosstalk is measured at panel center point

... [78]

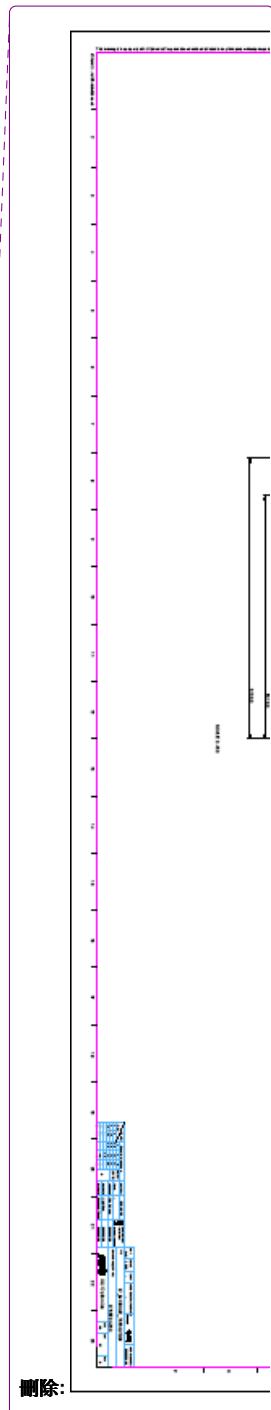
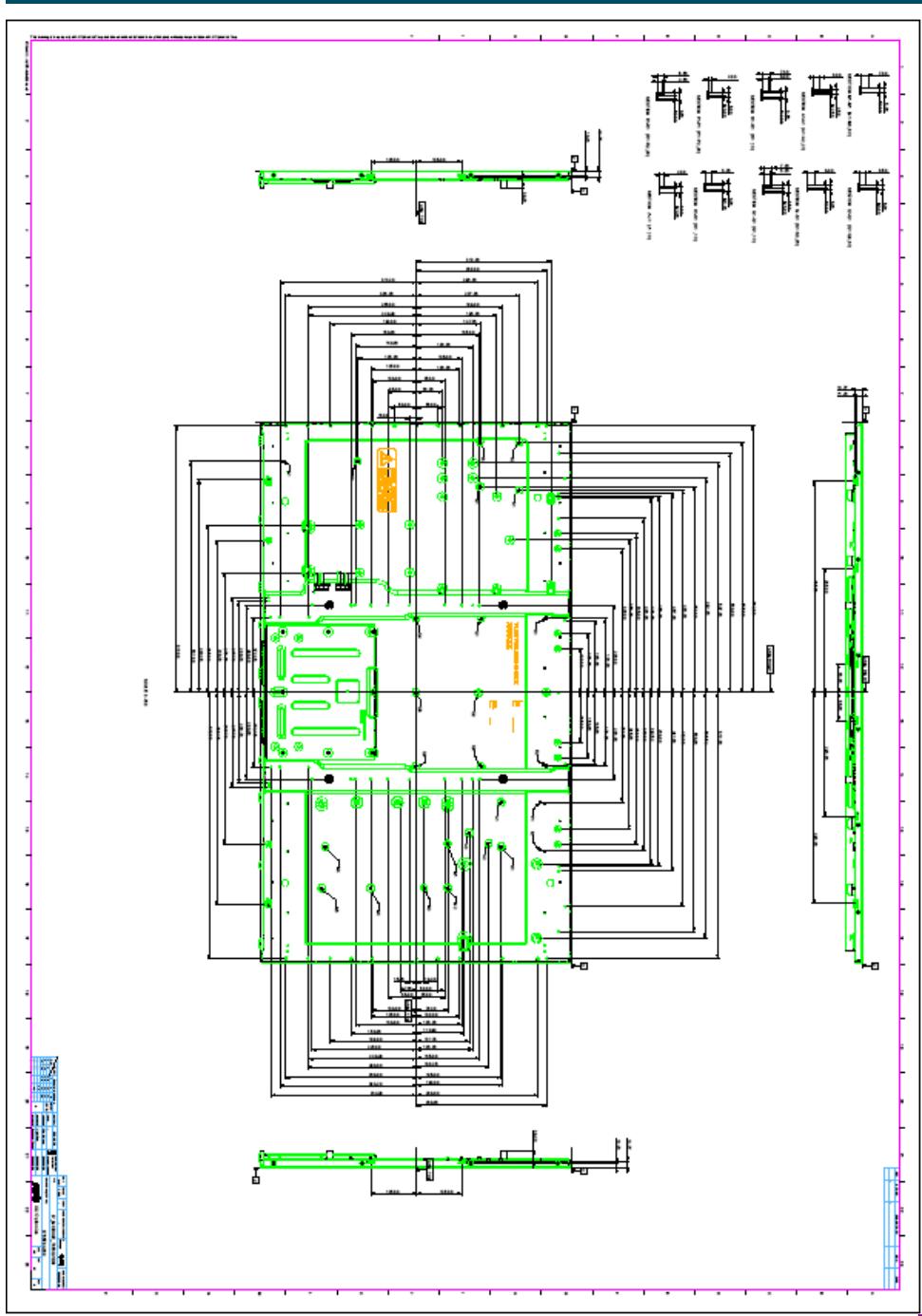
格式化: 字型色彩: 自動

Front View



Back View

格式化: 縮排: 左: 0 cm, 第
一行: 0 字元



6. Reliability Test Items

	Test Item	Q'ty	Condition	
1	High temperature storage test	3	60°C, 300hrs	刪除: 1 ... [79]
2	Low temperature storage test	3	-20°C, 300hrs	刪除: 2 ... [80]
3	High temperature operation test	3	50°C, 300hrs	刪除: 3 ... [81]
4	Low temperature operation test	3	-5°C, 300hrs	刪除: 4 ... [82]
5	Vibration test (non-operation)	3	Wave form: random Vibration level : 1.0G RMS Bandwidth : 10-300Hz Duration : X,Y,Z 10min per axes X,Y,Z: Horizontal, face up	刪除: 5 ... [83]
6	Shock test (non-operation)	3	Shock level 30G,11ms in ±X,Y,Z axis Waveform: half sine wave Direction: One time each direction	刪除: Shock level 30G,11ms in ±X,Y,Z axis Waveform: half sine wave Direction: One time each direction
7	Vibration test (With carton)	6	Random wave (1.05Grms 10~200Hz) Duration : X,Y,Z 10min per axes	刪除: 6 ... [84]
8	Drop test (With carton)	6	Height: (ASTMD4169-I) 25.4 cm; surround four flats, bottom flat two times (refer ASTM D 5276)	刪除: Random wave (1.05Grms 10~200Hz) Duration : X,Y,Z 10min per axes 刪除: Height: (ASTMD4169-I) 1 corner, XX.Xcm 3 edges, 6 surfaces (refer ASTM D 5276)

7. International Standard

7.1 Safety

- (1) UL 60950-1, UL 60065; Standard for Safety of Information Technology Equipment Including electrical Business Equipment.
- (2) IEC 60950-1 : 2001, IEC 60065:2001 ; Standard for Safety of International Electrotechnical Commission
- (3) EN 60950 : 2001+A11, EN 60065:2002+A1:2006; European Committee for Electrotechnical Standardization (CENELEC), EUROPEAN STANDARD for Safety of Information Technology Equipment Including Electrical Business Equipment.

7.2 EMC

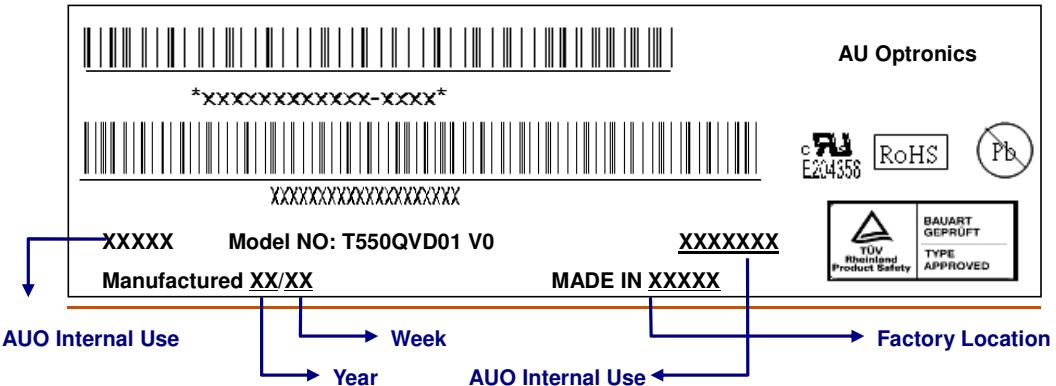
- (1) ANSI C63.4 "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electrical Equipment in the Range of 9kHz to 40GHz. "American National standards Institute(ANSI), 1992
- (2) C.I.S.P.R "Limits and Methods of Measurement of Radio Interface Characteristics of Information Technology Equipment." International Special committee on Radio Interference.
- (3) EN 55022 "Limits and Methods of Measurement of Radio Interface Characteristics of Information Technology Equipment." European Committee for Electrotechnical Standardization. (CENELEC), 1998

8. Packing

8-1 DEFINITION OF LABEL:

A. Panel Label:

← → 格式化: 項目符號及編號



Green mark description

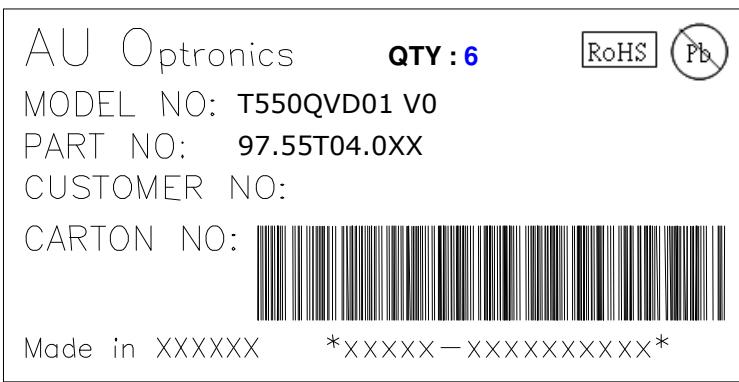
← → 格式化: 項目符號及編號

- (1) For Pb Free Product, AUO will add **Pb** for identification.
- (2) For RoHS compatible products, AUO will add **RoHS** for identification.

Note: The green Mark will be present only when the green documents have been ready by AUO internal green team.

(definition of green design follows the AUO green design checklist.)

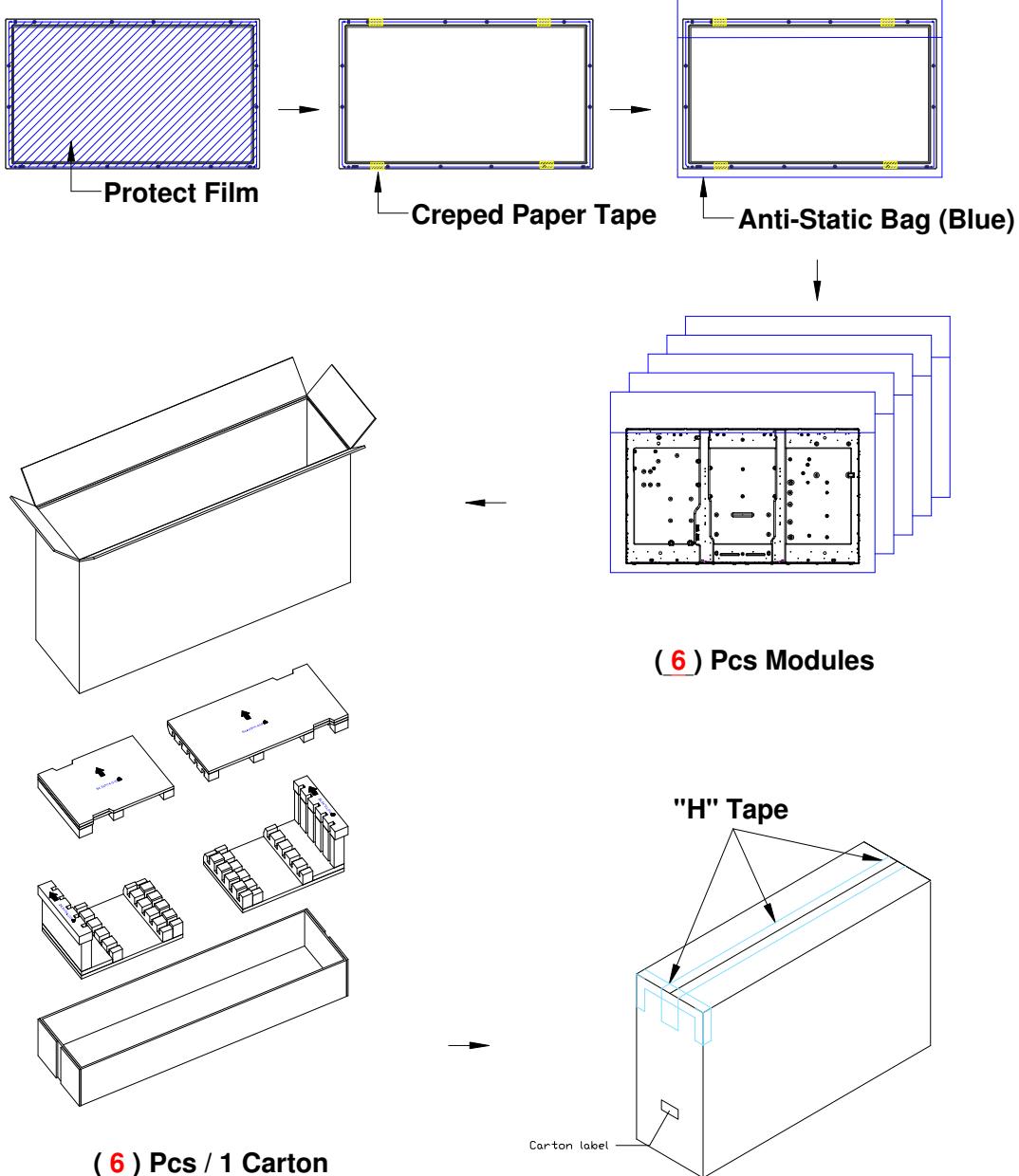
B. Carton Label:



8-2 PACKING METHODS:

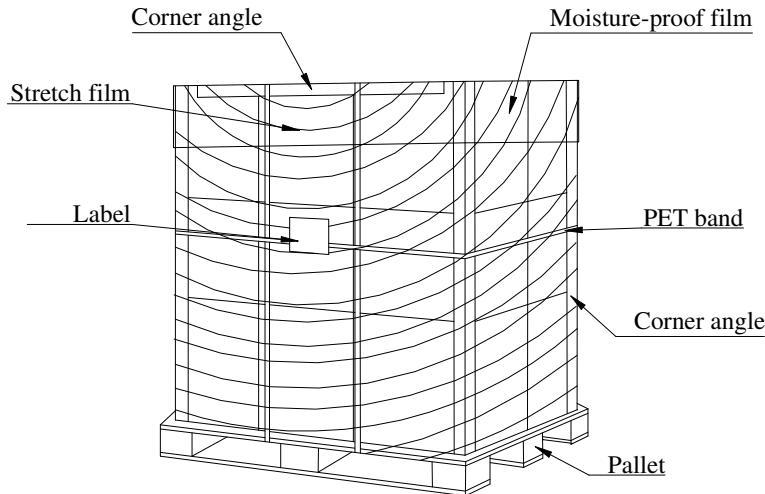
刪除: 分頁符號

格式化: 縮排: 第一行: 0 cm



8-3 Pallet and Shipment Information

	Item	Specification			Packing Remark
		Qty.	Dimension	Total Weight (kg)	
1	Packing BOX	6pcs/box	1355(L)*565(W)*806(H)	118.09	Box = 4.09 kg Cushion = 3kg
2	Pallet	1	1390(L)*1150(W)*138(H)	18.2	
3	Boxes per Pallet		2 boxes/pallet		
4	Panels per Pallet		12pcs/pallet		
	Pallet after packing	32	1390(L)*1150(W)*944(H)	254.4	



格式化: 字型色彩: 自動
刪除: 8. Packing
8-1 DEFINITION OF LABEL:

<#>Panel Label:
xxxxxxxxxxxx-xxxx
<sp>
<sp><sp><sp>

Green mark description
<#>For Pb Free Product,
AUO will add for identification.
<#>For RoHS compatible products, AUO will add for identification.
Note: The green Mark will be present only when the green documents have been ready by AUO internal green team. (definition of green design follows the AUO green design checklist.)

... [87]
格式化: 項目符號及編號

7. PRECAUTIONS

Please pay attention to the followings when you use this TFT LCD module.

9-1 MOUNTING PRECAUTIONS

- (1) You must mount a module using holes arranged in four corners or four sides.
- (2) You should consider the mounting structure so that uneven force (ex. twisted stress) is not applied to module. And the case on which a module is mounted should have sufficient strength so that external force is not transmitted directly to the module.
- (3) Please attach the surface transparent protective plate to the surface in order to protect the polarizer. Transparent protective plate should have sufficient strength in order to resist external force.
- (4) You should adopt radiation structure to satisfy the temperature specification.
- (5) Acetic acid type and chlorine type materials for the cover case are not desirable because the former generates corrosive gas of attacking the polarizer at high temperature and the latter cause circuit broken by electro-chemical reaction.
- (6) Do not touch, push or rub the exposed polarizer with glass, tweezers or anything harder than HB pencil lead. And please do not rub with dust clothes with chemical treatment. Do not touch the surface of polarizer for bare hand or greasy cloth. (Some cosmetics are detrimental to the polarizer.)
- (7) When the surface becomes dusty, please wipe gently with absorbent cotton or other soft materials like chamois soaks with petroleum benzene. Normal-hexane is recommended for cleaning the adhesives used to attach front/ rear polarizer. Do not use acetone, toluene and alcohol because they cause chemical damage to the polarizer.
- (8) Wipe off saliva or water drops as soon as possible. Their long time contact with polarizer causes deformations and color fading.
- (9) Do not open the case because inside circuits do not have sufficient strength.

9-2 OPERATING PRECAUTIONS

- (1) The device listed in the product specification sheets was designed and manufactured for TV application
- (2) The spike noise causes the mis-operation of circuits. It should be lower than following voltage:
 $V=\pm 200mV$ (Over and under shoot voltage)
- (3) Response time depends on the temperature. (In lower temperature, it becomes longer..)
- (4) Brightness of CCFL depends on the temperature. (In lower temperature, it becomes lower.) And in lower temperature, response time (required time that brightness is stable after turned on) becomes longer.
- (5) Be careful for condensation at sudden temperature change. Condensation makes damage to polarizer or electrical contacted parts. And after fading condensation, smear or spot will occur.
- (6) When fixed patterns are displayed for a long time, remnant image is likely to occur.
- (7) Module has high frequency circuits. Sufficient suppression to the electromagnetic interference shall be done by system manufacturers. Grounding and shielding methods may be important to minimize the interface.

9-3 ELECTROSTATIC DISCHARGE CONTROL

Since a module is composed of electronic circuits, it is not strong to electrostatic discharge. Make certain that treatment persons are connected to ground through wristband etc. And don't touch interface pin directly.

9-4 PRECAUTIONS FOR STRONG LIGHT EXPOSURE

Strong light exposure causes degradation of polarizer and color filter.

9-5 STORAGE

When storing modules as spares for a long time, the following precautions are necessary.

- (1) Store them in a dark place. Do not expose the module to sunlight or fluorescent light. Keep the temperature between 5°C and 35°C at normal humidity.
- (2) The polarizer surface should not come in contact with any other object. It is recommended that they be stored in the container in which they were shipped.

9-6 HANDLING PRECAUTIONS FOR PROTECTION FILM

- (1) The protection film is attached to the bezel with a small masking tape. When the protection film is peeled off, static electricity is generated between the film and polarizer. This should be peeled off slowly and carefully by people who are electrically grounded and with well ion-blown equipment or in such a condition, etc.
- (2) When the module with protection film attached is stored for a long time, sometimes there remains a very small amount of glue still on the bezel after the protection film is peeled off.
- (3) You can remove the glue easily. When the glue remains on the bezel or its vestige is recognized, please wipe them off with absorbent cotton waste or other soft material like chamois soaked with normal-hexane.

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3.1.2: AC Characteristics (TBD)

Parameter	Symbol	Max	Unit	Note
-----------	--------	-----	------	------

Customer Signature	Date	AUO	<i>洪 明 吉</i>	Date
Approved By		Approval By PM Director	<i>Janna Huang</i>	
Note		Reviewed By RD Director		
		Reviewed By Project Leader		
		Prepared By PM		

LVDS Interface	Input Channel Pair Skew Margin (only for TCON: 12403U1, 12405K01)	$t_{SKew} (CP)$				ps	6
	Receiver Clock : Spread Spectrum Modulation range	Fclk_ss				MHz	7

	Receiver Clock : Spread Spectrum Modulation frequency	Fss				KHz	7
	Receiver Data Input Margin Fclk = 85 MHz Fclk = 65 MHz	tRMG				ns	8

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DCR Interface: Function Table

Input		Output
DCR_Enable	DIM_IN	DIM_OUT
High	PWM Input	DCR Dimming Out
Low	PWM Input	PWM Input
NC	NC	Keep High

Note.(4-1) : During the deep duty control, partial darkness or center darkness might happen due to insufficient LED current.

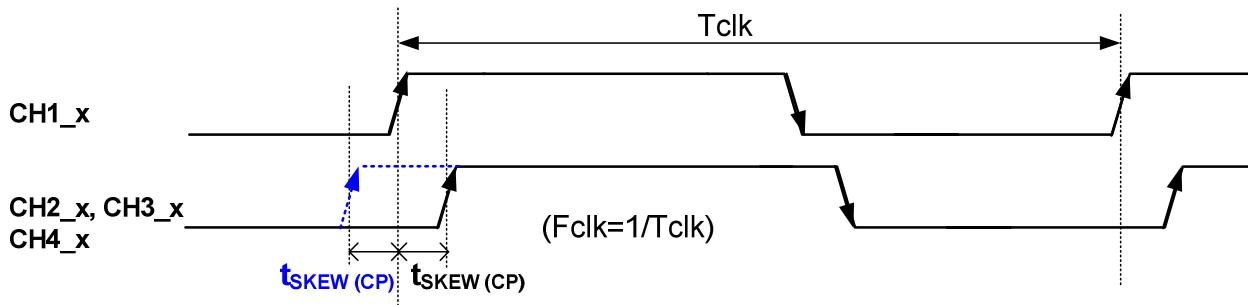
Note.(4-2): At low temperature, more warm up time may be needed.

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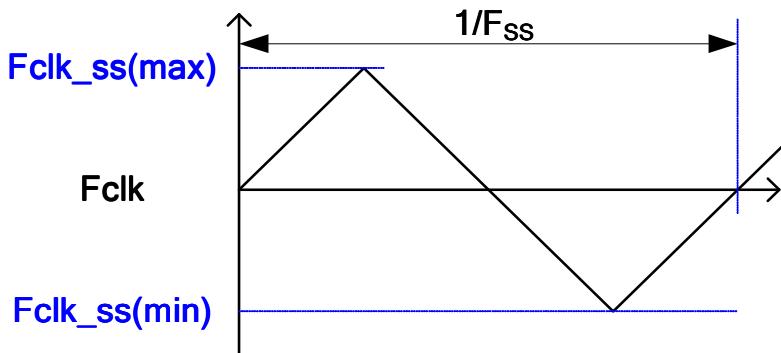
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Input Channel Pair Skew Margin



Note: $x = 0, 1, 2, 3, 4$

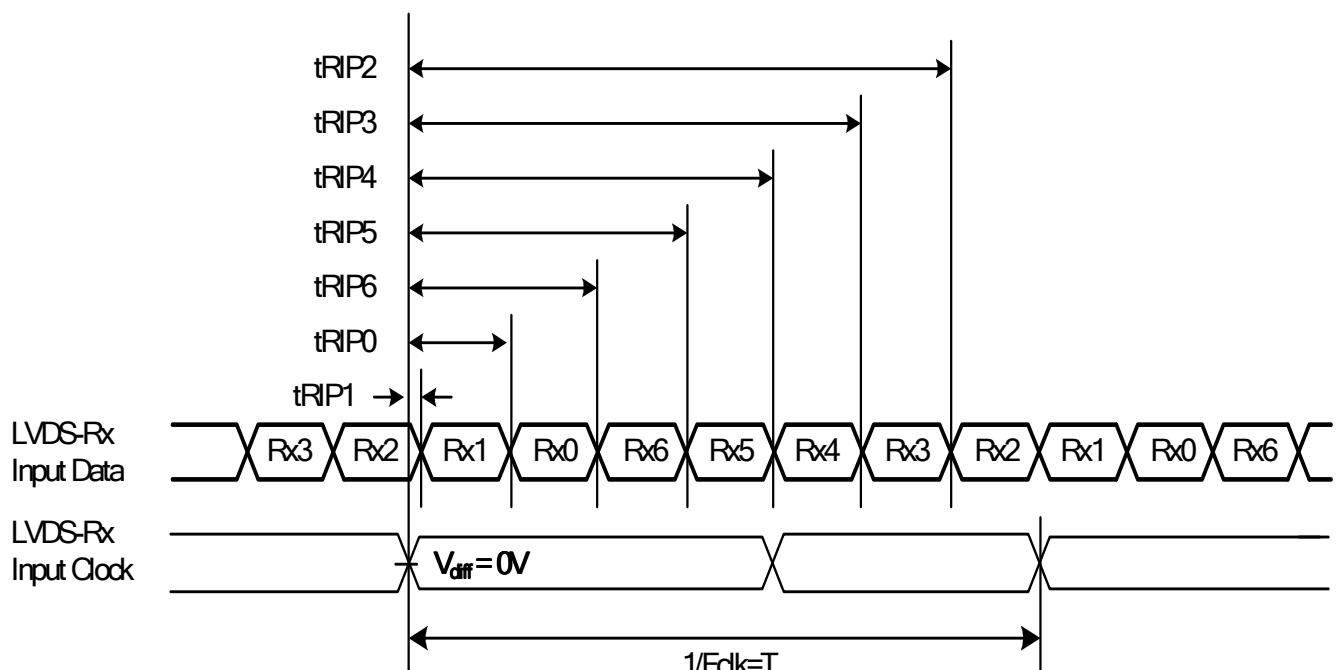
LVDS Receiver Clock SSCG (Spread spectrum clock generator) is defined as below figures



-----分頁符號-----

Receiver Data Input Margin

Parameter	Symbol	Rating			Unit	Note
		Min	Type	Max		
Input Clock Frequency	Fclk	Fclk (min)	--	Fclk (max)	MHz	T=1/Fclk
Input Data Position0	tRIP1	- tRMG	0	tRMG	ns	
Input Data Position1	tRIP0	T/7- tRMG	T/7	T/7+ tRMG	ns	
Input Data Position2	tRIP6	2T/7- tRMG	2T/7	2T/7+ tRMG	ns	
Input Data Position3	tRIP5	3T/7- tRMG	3T/7	3T/7+ tRMG	ns	
Input Data Position4	tRIP4	4T/7- tRMG	4T/7	4T/7+ tRMG	ns	
Input Data Position5	tRIP3	5T/7- tRMG	5T/7	5T/7+ tRMG	ns	
Input Data Position6	tRIP2	6T/7- tRMG	6T/7	6T/7+ tRMG	ns	



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PIN

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Symbol

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Description

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PIN

第 8 頁: [5] 刪除	jannahuang	2011/12/20 7:08:00 PM
Symbol		
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Description		
第 8 頁: [6] 刪除	jannahuang	2011/12/20 7:08:00 PM
GND		
第 8 頁: [6] 刪除	jannahuang	2011/12/20 7:08:00 PM
Ground		
第 8 頁: [7] 刪除	jannahuang	2011/12/20 7:08:00 PM
Rx11n		
第 8 頁: [7] 刪除	jannahuang	2011/12/20 7:08:00 PM
V-by-One HS Data Lane 11		
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2		
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GND		
第 8 頁: [8] 刪除	jannahuang	2011/12/20 7:08:00 PM
Ground		
第 8 頁: [8] 刪除	jannahuang	2011/12/20 7:08:00 PM
22		
第 8 頁: [9] 刪除	jannahuang	2011/12/20 7:08:00 PM
Rx11p		
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V-by-One HS Data Lane 11		
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3		
第 8 頁: [10] 刪除	jannahuang	2011/12/20 7:08:00 PM
GND		
第 8 頁: [10] 刪除	jannahuang	2011/12/20 7:08:00 PM
Ground		
第 8 頁: [10] 刪除	jannahuang	2011/12/20 7:08:00 PM

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第 8 頁: [11] 刪除	jannahuang GND	2011/12/20 7:08:00 PM
第 8 頁: [11] 刪除	jannahuang CML Ground	2011/12/20 7:08:00 PM
第 8 頁: [12] 刪除	jannahuang	2011/12/20 7:08:00 PM
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第 8 頁: [12] 刪除	jannahuang Ground	2011/12/20 7:08:00 PM
第 8 頁: [12] 刪除	jannahuang	2011/12/20 7:08:00 PM
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第 8 頁: [14] 刪除	jannahuang	2011/12/20 7:08:00 PM
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第 8 頁: [14] 刪除	jannahuang Ground	2011/12/20 7:08:00 PM
第 8 頁: [14] 刪除	jannahuang	2011/12/20 7:08:00 PM
	25	
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第 8 頁: [15] 刪除	jannahuang V-by-One HS Data Lane 12	2011/12/20 7:08:00 PM
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	6	
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第 8 頁: [16] 刪除	jannahuang	2011/12/20 7:08:00 PM

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	V-by-One HS Data Lane 12	
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	I2C Data	
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	CML Ground	
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	GND	
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	CML Ground	
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	Rx8n	
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	V-by-One HS Data Lane 8	
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	Rx13n	
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	V-by-One HS Data Lane 13	
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	Rx8p	
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	V-by-One HS Data Lane 8	
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	Rx13p	
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	V-by-One HS Data Lane 13	
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	GND	

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	CML Ground	
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	GND	
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	CML Ground	
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	GND	
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	CML Ground	
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	GND	
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	CML Ground	
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	Rx9n	
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	V-by-One HS Data Lane 9	
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	GND	
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	GND	

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	CML Ground	
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	Rx10n	
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	Rx15n	
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	V-by-One HS Data Lane 15	
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	Rx10p	
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	Rx6n	
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	Rx0n	
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	Rx6p	
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	V-by-One HS Data Lane 6	
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	Rx0p	
第 9 頁: [45] 刪除	jannahuang	2011/12/20 7:09:00 PM
	V-by-One HS Data Lane 0	
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GND

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	CML Ground	
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	GND	
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	CML Ground	
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	22	
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	GND	
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	CML Ground	
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	47	
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	Rx7n	
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	Rx1n	
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	Rx7p	
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	V-by-One HS Data Lane 7	
第 9 頁: [53] 刪除	jannahuang	2011/12/20 7:09:00 PM
	Rx1p	
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	V-by-One HS Data Lane 1	
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	GND	
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	GND	
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	CML Ground	
第 9 頁: [56] 刪除	jannahuang	2011/12/20 7:09:00 PM
	AUO Internal Use Only	
第 9 頁: [57] 刪除	jannahuang	2011/12/20 7:09:00 PM
	SYNC3D_I	
第 9 頁: [57] 刪除	jannahuang	2011/12/20 7:09:00 PM
	3D Sync. In Flag (Glasses type)	
第 9 頁: [58] 刪除	jannahuang	2011/12/20 7:10:00 PM
	PIN	
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	PWR Power V12 IN	
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	PWR Power V12 IN	
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	PWR Power V12 IN	
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	PWR Power V12 IN	

第 9 頁: [62] 刪除	jannahuang	2011/12/20 7:10:00 PM
PWR Power V12 IN		
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PWR Power V12 IN		
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PWR Power V12 IN		
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PWR Power V12 IN		
第 9 頁: [64] 刪除	jannahuang	2011/12/20 7:10:00 PM
GND Ground		
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GND Ground		
第 9 頁: [65] 刪除	jannahuang	2011/12/20 7:10:00 PM
GND Ground		
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GND Ground		
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GND Ground		
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GND Ground		
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GND Ground		
第 9 頁: [67] 刪除	jannahuang	2011/12/20 7:10:00 PM
GND Ground		
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GND Ground		

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GND Ground

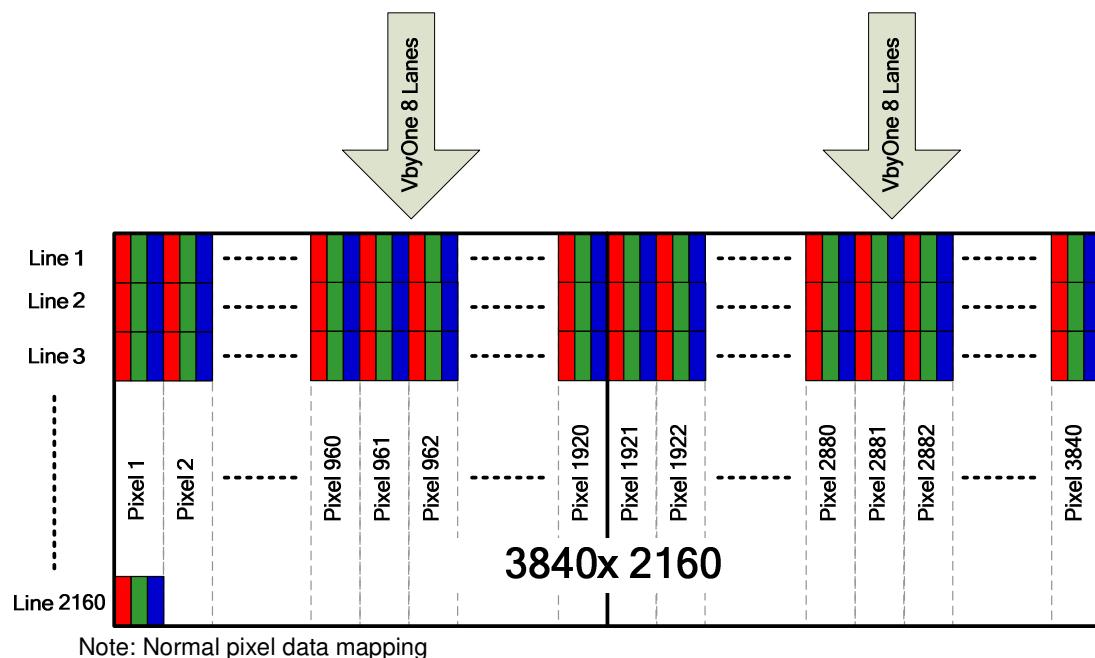
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K2K Input Data Format:

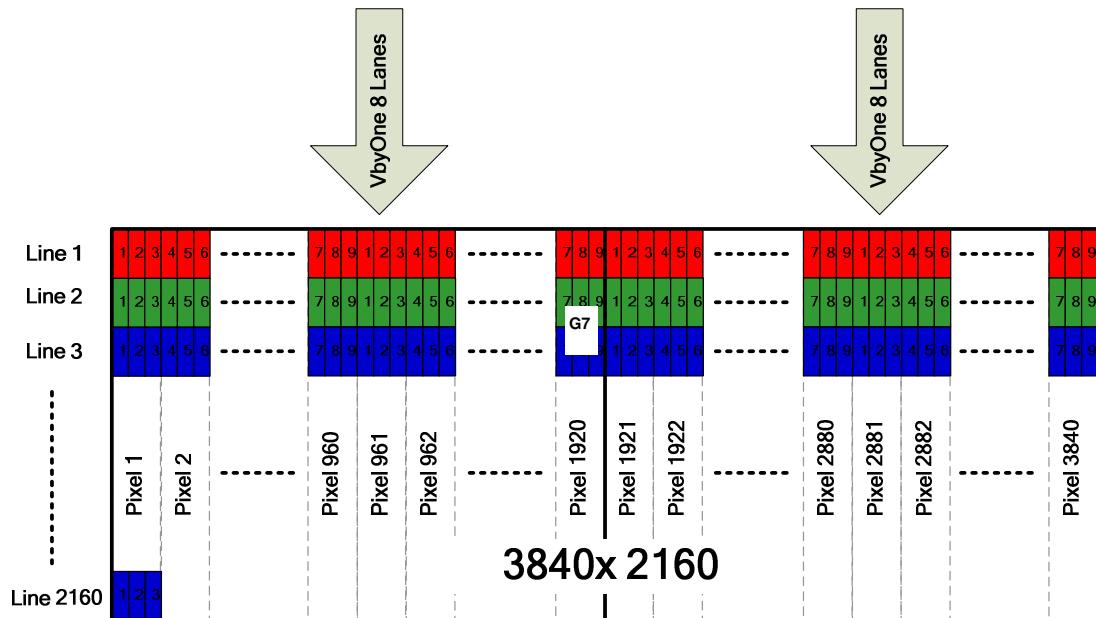
2D Mode:



2D Mode Pixel Mapping:

Pixel No	Pixel 1			Pixel 2			Pixel 3			~			Pixel 3840		
Line 1	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840	
Line 2	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840	
Line 3	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840	
Line 4	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840	
Line 5	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840	
Line 6	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840	
:	:	:	:	:	:	:	:	:	:	:	~	:	:	:	
Line 2158	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840	
Line 2159	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840	
Line 2160	R1	G1	B1	R2	G2	B2	R3	G3	B3	R4	~	R3840	G3840	B3840	

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3D Mode (9-View)


Note: 3D multi-view data mapping (1,2,3,4,5,6,7,8,9 is the viewing number)

3D Mode Pixel Mapping:

	Pixel No.	Pixel 1			Pixel 2			Pixel 3			~		Pixel 3840	
		View #	1	2	3	4	5	6	7	8	9	1	~	7
Line 1	Multi-view Line 1	R1	R1	R1	R1	R1	R1	R1	R1	R1	R2	~	R1280	R1280
Line 2		G1	G1	G1	G1	G1	G1	G1	G1	G1	G2	~	G1280	G1280
Line 3		B1	B1	B1	B1	B1	B1	B1	B1	B1	B2	~	B1280	B1280
Line 4	Multi-view Line 2	R1	R1	R1	R1	R1	R1	R1	R1	R1	R2	~	R1280	R1280
Line 5		G1	G1	G1	G1	G1	G1	G1	G1	G1	G2	~	G1280	G1280
Line 6		B1	B1	B1	B1	B1	B1	B1	B1	B1	B2	~	B1280	B1280
:	:	:	:	:	:	:	:	:	:	:	:	~	:	:
Line 2158	Multi-view Line 720	R1	R1	R1	R1	R1	R1	R1	R1	R1	R2	~	R1280	R1280
Line 2159		G1	G1	G1	G1	G1	G1	G1	G1	G1	G2	~	G1280	G1280
Line 2160		B1	B1	B1	B1	B1	B1	B1	B1	B1	B2	~	B1280	B1280

V-by-One Lanes of Pixel Data :

	Lane 0	Lane 1	Lane 2	Lane 3	Lane 4	Lane 5	Lane 6	Lane 7
Blank	FSBS							
	FSBP							
	FSBE_SR							
Line 1	Pixel 1	Pixel 2	Pixel 3	Pixel 4	Pixel 5	Pixel 6	Pixel 7	Pixel 8
	Pixel 9	Pixel 10	Pixel 11	Pixel 12	Pixel 13	Pixel 14	Pixel 15	Pixel 16

Blank	Pixel 1913	Pixel 1914	Pixel 1915	Pixel 1916	Pixel 1917	Pixel 1918	Pixel 19198	Pixel 1920
	FSBS							
	FSBP							
Line2	FSBE_SR							
	Pixel 1	Pixel 2	Pixel 3	Pixel 4	Pixel 5	Pixel 6	Pixel 7	Pixel 8
	Pixel 8	Pixel 10	Pixel 11	Pixel 12	Pixel 13	Pixel 14	Pixel 15	Pixel 16
Line2
	Pixel 1913	Pixel 1914	Pixel 1915	Pixel 1916	Pixel 1917	Pixel 1918	Pixel 19198	Pixel 1920

Line2

	Lane 8	Lane 9	Lane 10	Lane 11	Lane 12	Lane 13	Lane 14	Lane 15
Blank	FSBS	FSBS	FSBS	FSBS	FSBS	FSBS	FSBS	FSBS
	FSBP	FSBP	FSBP	FSBP	FSBP	FSBP	FSBP	FSBP
	FSBE_SR	FSBE_SR	FSBE_SR	FSBE_SR	FSBE_SR	FSBE_SR	FSBE_SR	FSBE_SR
Line 1	Pixel 1921	Pixel 1922	Pixel 1923	Pixel 1924	Pixel 1925	Pixel 1926	Pixel 1927	Pixel 1928
	Pixel 1929	Pixel 1930	Pixel 1931	Pixel 1932	Pixel 1933	Pixel 1934	Pixel 1935	Pixel 1936

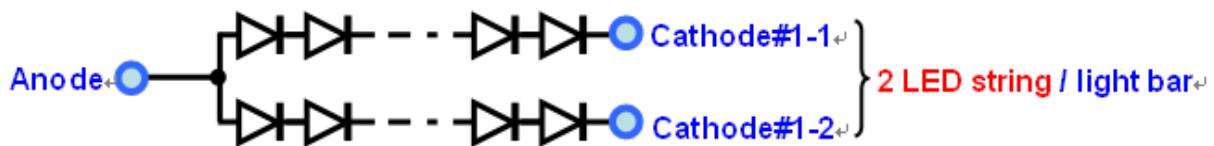
Blank	Pixel 3833	Pixel 3834	Pixel 3835	Pixel 3836	Pixel 3837	Pixel 3838	Pixel 3839	Pixel 3840
	FSBS	FSBS	FSBS	FSBS	FSBS	FSBS	FSBS	FSBS
	FSBP	FSBP	FSBP	FSBP	FSBP	FSBP	FSBP	FSBP
Line2	FSBE_SR	FSBE_SR	FSBE_SR	FSBE_SR	FSBE_SR	FSBE_SR	FSBE_SR	FSBE_SR
	Pixel 1921	Pixel 1922	Pixel 1923	Pixel 1924	Pixel 1925	Pixel 1926	Pixel 1927	Pixel 1928
	Pixel 1929	Pixel 1930	Pixel 1931	Pixel 1932	Pixel 1933	Pixel 1934	Pixel 1935	Pixel 1936
Line2
	Pixel 3833	Pixel 3834	Pixel 3835	Pixel 3836	Pixel 3837	Pixel 3838	Pixel 3839	Pixel 3840

Line2

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S
3.7.1 Light bar Driven Condition

Parameter	Symbol	Values			Unit	Note
		Min	Typ	Max		
Forward Current (one light bar)	Anode	IF (anode)		616		mA
	Cathode	IF (cathode)		77		mA
Peak Forward Current		IFP			550	mA
Forward Voltage		VF	50.8	55.3	59.8	V
Forward Voltage Variation		Δ VF			1.8	V
Total Power Consumption (4 light bars)		PBL	125.2	136.3	147.4	W


Note 1: Low dimming ratio operation

When PWM dimming duty ratio is operated lower than recommended value, feedback signal and all protection functions should be confirmed by LIPS design. Display performance should also be confirmed by customer's implement.

Note 2: Each LED string should be driven by independent current control/feedback circuit.

Note 3: Fuse protection should be added into LIPS circuit to have better LED driving protection.

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The backlight unit contains 12pcs light bar.

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3.7.1 Electrical specification

	Item	Symbol	Condition	Spec			Unit	Note
				Min	Typ	Max		
1	Input Voltage	V _{DDB}	-				VDC	-
2	Input Current	I _{DDB}	V _{DDB} =24V				ADC	1
3	Input Power	P _{DDB}	V _{DDB} =24V				W	1
4	Inrush Current	I _{RUSH}	V _{DDB} =24V				ADC	2
5	On/Off control voltage	V _{BLON}	ON	V _{DDB} =24V			VDC	-
			OFF					-
6	On/Off control current	I _{BLON}	V _{DDB} =24V				mA	-
7	External PWM Control Voltage	V _{EPWM}	MAX	V _{DDB} =24V			VDC	-
			MIN	V _{DDB} =24V				-
8	External PWM Control Current	I _{EPWM}	V _{DDB} =24V				mADC	-
9	External PWM Duty ratio	D _{EPWM}	V _{DDB} =24V				%	3
10	External PWM Frequency	F _{EPWM}	V _{DDB} =24V				Hz	-
11	DET status signal	DET	HI	V _{DDB} =24V				VDC 4
			Lo					VDC 4
12	Input Impedance	R _{in}	V _{DDB} =24V				Kohm	-

Note 1 : Dimming ratio= 100% (MAX) (Ta=25±5°C , Turn on for 45minutes)

Note 2: Measurement condition Rising time = 20ms (V_{DDB} : 10%~90%);

Note 3: Less than 5% dimming control is functional well and no backlight shutdown happened

Note 4: Normal : 0~0.8V ; Abnormal : Open collector

3.7.2 Input Pin Assignment

LED connector : CviLux CI1420M1HRH-NH

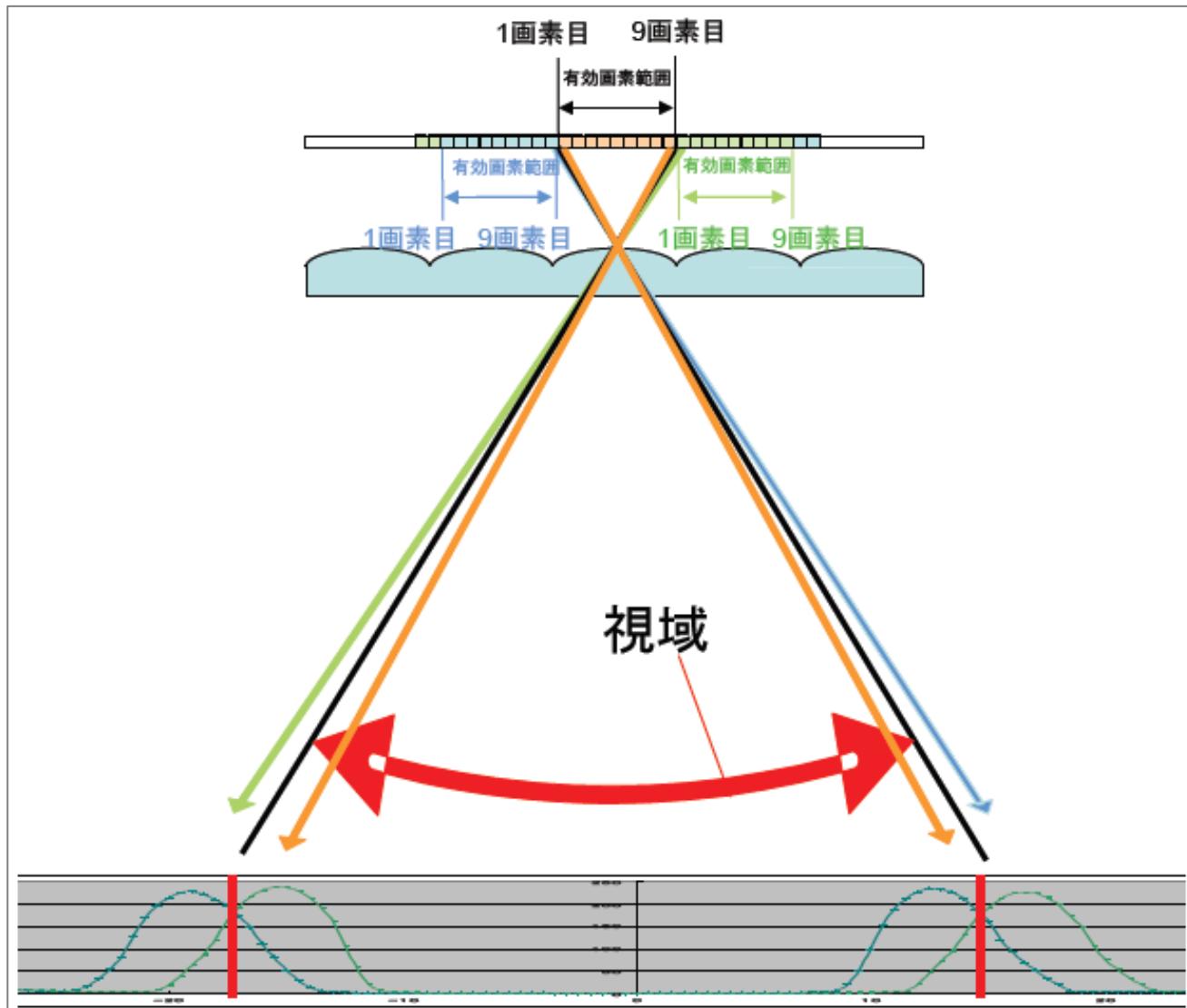
Pin Number	CN102	CN103
1	Zone2+	Zone4+
2	Zone2+	Zone4+
3	Zone2_1-	Zone4_1-
4	Zone2_2-	Zone4_2-
5	Zone2_3-	Zone4_3-
6	Zone2_4-	Zone4_4-
7	Zone2_5-	Zone4_5-
8	Zone2_6-	Zone4_6-
9	Zone2_7-	Zone4_7-
10	Zone2_8-	Zone4_8-
11	Zone1+	Zone3+
12	Zone1+	Zone3+
13	Zone1_1-	Zone3_1-
14	Zone1_2-	Zone3_2-
15	Zone1_3-	Zone3_3-
16	Zone1_4-	Zone3_4-
17	Zone1_5-	Zone3_5-
18	Zone1_6-	Zone3_6-
19	Zone1_7-	Zone3_7-
20	Zone1_8-	Zone3_8-

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FIG.4 3D Viewing angle



4.2 3D Optical Specification

. 3D performance specification is expressed by 3D luminance, 3D Crosstalk and 3D viewing angle. 3D luminance which is defined by L255 in all 9 views and measured at panel center point.

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summation of left and right eye brightness under wearing glasses condition is measured at panel center point.

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Also, 3D crosstalk is measured at panel center point

4-2-1 measurement items

No.	Evaluation Items	Unit	Difinition	55"			No
				Min	Typ	Max	
1	Lens pitch	um	Fig.1	Typ-2.5 --	481.53	Typ+2.5 --	Incoming Inspection
2	Lens curvature	um	Fig.1	TBD --	301.8	TBD --	Incoming Inspection
3	Lens sag	um	Fig.1	Typ-2.0 --	119.8	Typ+2.0 --	Incoming Inspection
4	Lens slant angle	deg	Fig.1	Typ-0.3- -	9.7824	Typ+0.3 --	Incoming Inspection
95	Converging distance Original	m	Before After AUO calibration	TBD	2.3 2 (TBD)	TBD	CalobrationCalibration
106	Min Crosstalk	%	Fig.2	TBD	TBD	TBD	Optical
117	Light ray peak center position	deg	Fig.3	TBD	0	TBD	Optical
128	3D Viewing angle	deg	Fig.4	TBD	TBD	TBD	Optical

FIG.1 Lens structure

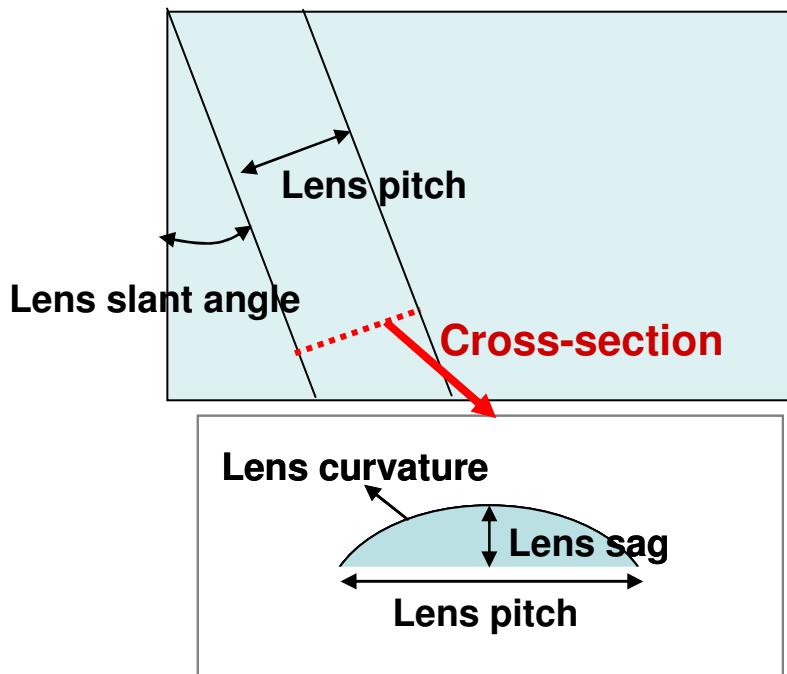
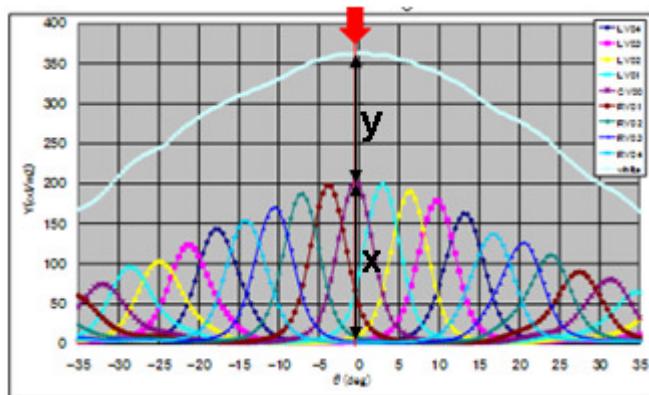


FIG.2 Crosstalk



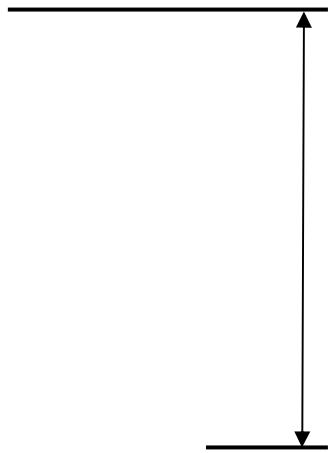


FIG.3 Light ray peak center position

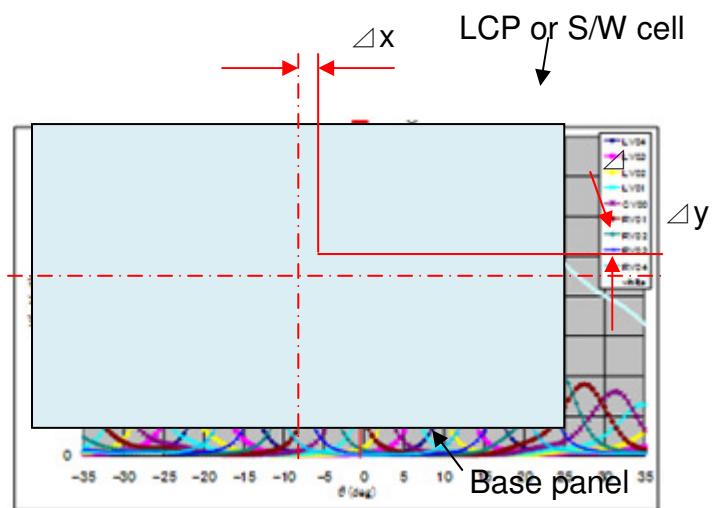
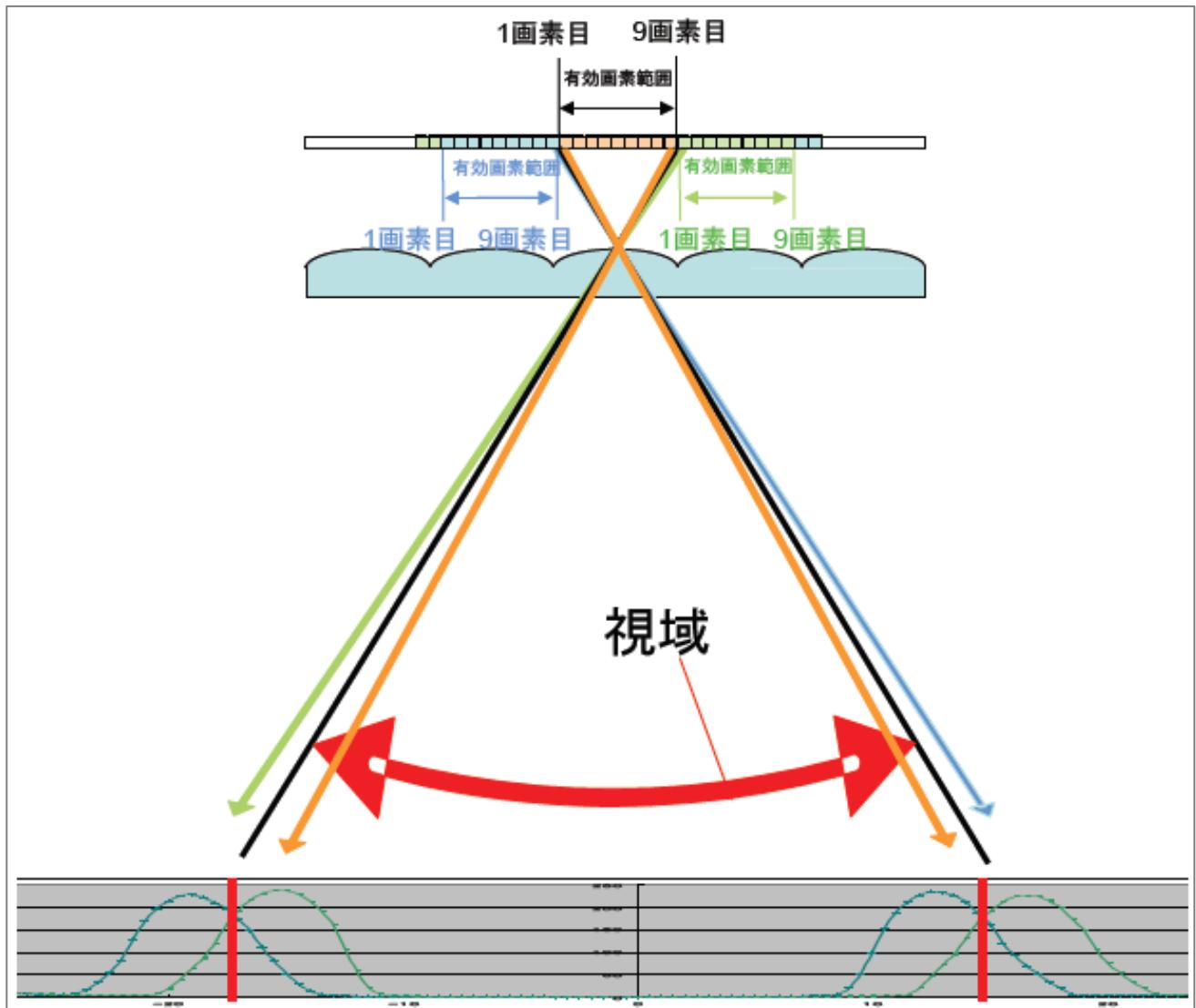


FIG.4 3D Viewing angle



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1

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High temperature storage test

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60°C, 300hrs

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2

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Low temperature storage test

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-20°C, 300hrs

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High temperature operation test

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3

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50°C, 300hrs

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Low temperature operation test

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-5°C, 300hrs

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Vibration test (non-operation)

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Shock test (non-operation)

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Vibration test (With carton)

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Drop test (With carton)

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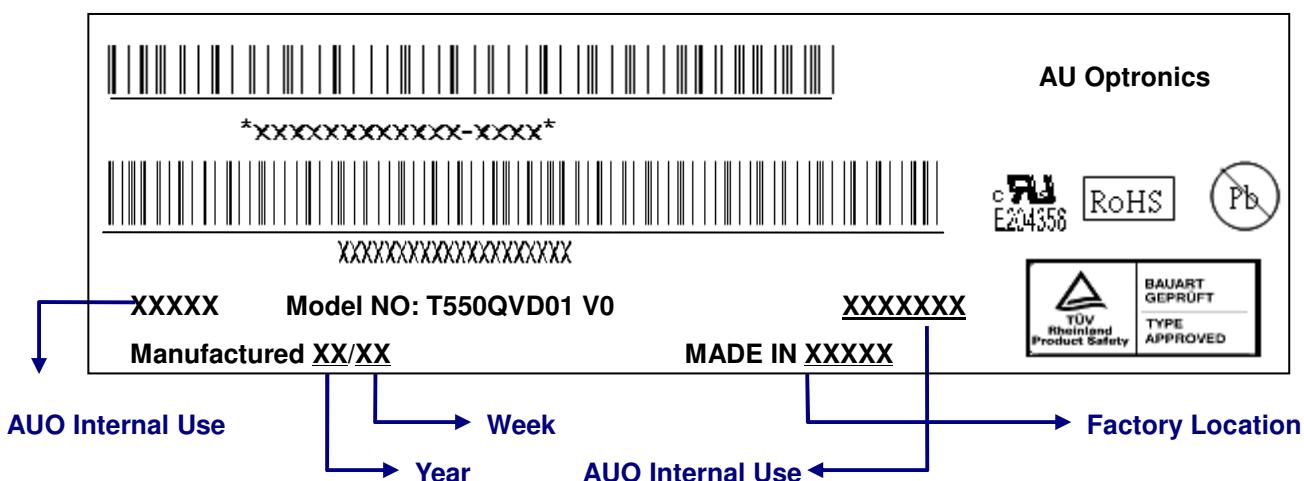
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8. Packing

8-1 DEFINITION OF LABEL:

Panel Label:

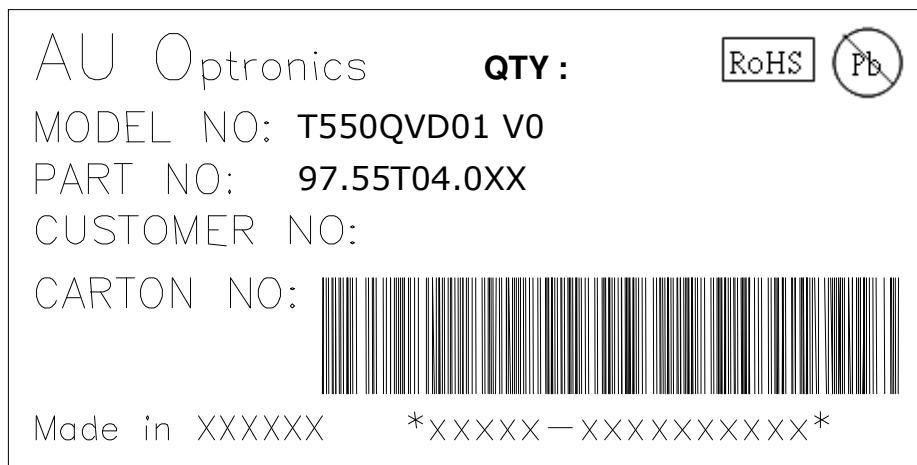


Green mark description

For Pb Free Product, AUO will add  for identification.

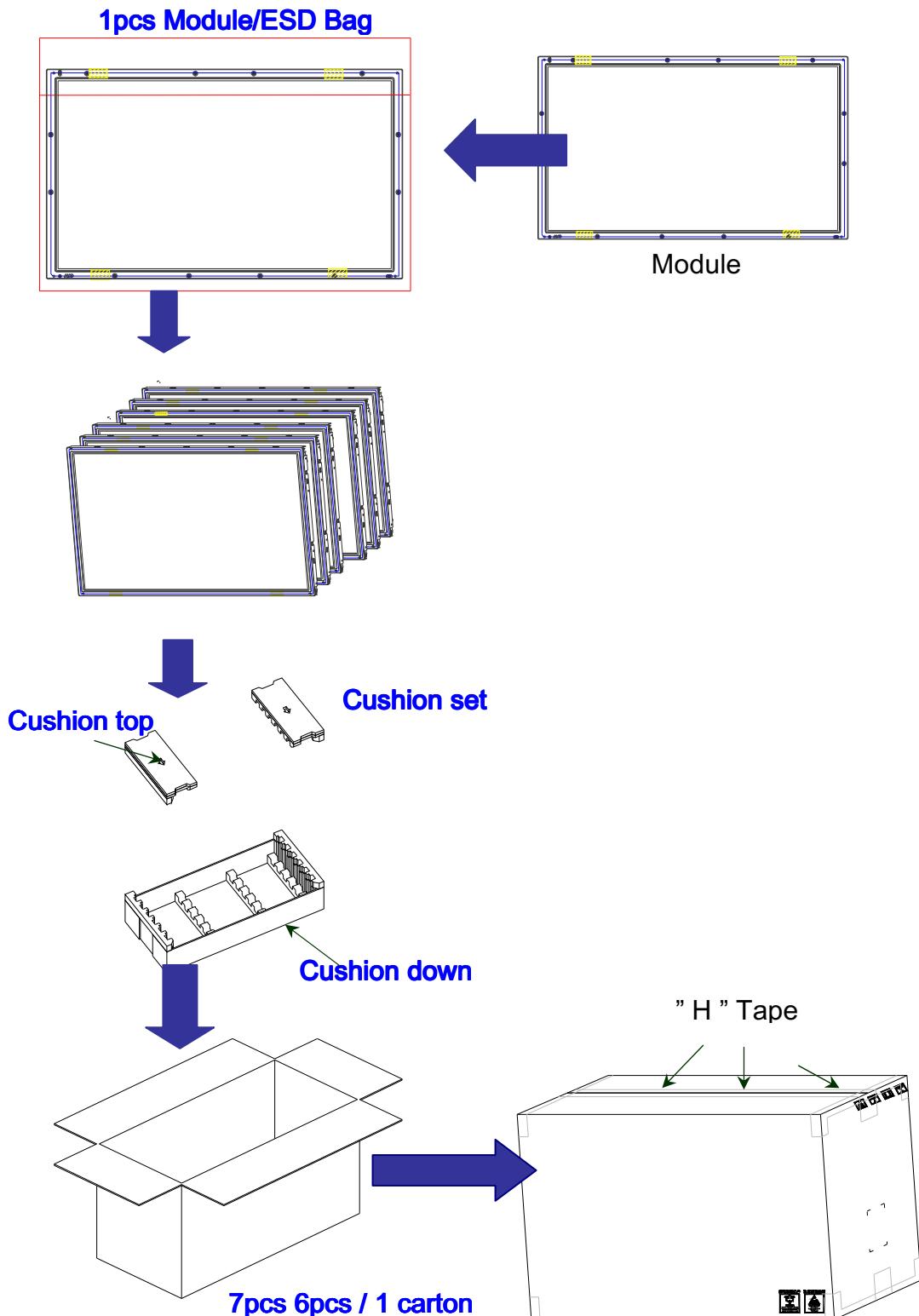
For RoHS compatible products, AUO will add  for identification.

Note: The green Mark will be present only when the green documents have been ready by AUO internal green team. (definition of green design follows the AUO green design checklist.)

B. Carton Label:

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8-2 PACKING METHODS:



分頁符號

8-3 Pallet and Shipment Information

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Page 28 / 34

	Item	Specification			Packing Remark	
		Qty.	Dimension	Weight (kg)		
1	Packing BOX	7pcs/box	1050(L)*280(W)*650(H)	38	Box = xx kg	
2	Pallet	1	1140(L)*1060(W)*138(H)		Cushion = xxkg	
3	Boxes per Pallet	8 boxes/pallet				
4	Panels per Pallet	24pcs/pallet				
	Pallet after packing	24	1140(L)*1060(W)*1438(H)	320		

